MAY 22 1931

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THE JOURNAL

OF THE

American Medical Association

Medical Lib.

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 96, No. 21 | 535 North Dearborn Street, CHICAGO, ILL. | MAY 23, 1931

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Sec. 1103, Act of Oct. 3, 1917, authorized on June 14, 1918. If undeliverable, forwarding and return postage is guaranteed.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 96, No. 21 Chicago, Illinois May 23, 1931

THE RELATION OF RADIOLOGY TO OTHER BRANCHES OF MEDICAL PRACTICE *

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WASHINGTON, D. C.

Radiology is the youngest branch of medicine. The roentgen ray was discovered in 1895 and radium in 1897. Many of the pioneers in their use in diagnosis and therapy are still in active practice. The entire history of radiology therefore covers a period of only about thirty-five years. Its progress has been so rapid that no hospital is now complete without a roentgen-ray department and there is scarcely a physician who does not at times make use of the roentgen ray in diagnosis and of both the roentgen ray and radium in the treatment of disease.

Since these agents have become so widely used and so thoroughly established, the question is constantly arising as to the proper relationship of radiology to other branches of medical practice. Is it a special branch of medicine to be practiced by specialists in that field or is it simply a new armament which may be used to advantage by all members of the profession? The question is so large and varies so much under different conditions of practice that it cannot be answered in a categorical manner. There are, however, no sound reasons, either scientific or economic, for giving radiology a status different from that of other specialties. The same considerations govern here as in other fields; namely, the limitations imposed by practical conditions.

For instance, in rural communities where a county or community hospital is established and even in towns up to 15,000 and 20,000 in population, it is exceedingly rare to find a physician with the experience and training necessary to interpret results in all fields of radiology. It is quite possible, however, for a physician whose main interest is some other branch of medicine to train himself to utilize radiology within certain limits. The important consideration under such circumstances is that such a physician shall clearly recognize his limitation. Unless he does, his opinion based on roentgen observations will be misleading in so many cases as more than to offset its value in others.

TYPES OF LIMITED RADIOLOGIC PRACTICE

(*a*) Radiology in rural communities and in small cities up to about 20,000 in population. Under such conditions the practice of radiology must nearly always be combined with some other branch of medical work that does not take up all of the practitioner's time. It is rare indeed that the established busy practitioner can, with advantage, undertake to practice radiology; each type of work will interfere with the other and often prevent satisfactory work in both. The degree to which one practicing radiology in conjunction with other practice may perfect himself depends partly on the man and partly on the amount of work he is given to do. If he has sufficient work to occupy him beyond the demands of his other practice, he may become increasingly adept as a radiologist by careful study of the radiologic journals, by attendance at meetings of the radiologic societies and by postgraduate courses. Many capable and successful radiologists have been developed along such lines. He will always be hampered in his progress by insufficient experience because of the relatively small number of cases that he will be called on to examine in any one field. He will also be limited by the extent to which certain special branches of medicine are developed in his community. Only disaster may be expected, for instance, when a general surgeon inexperienced in urology relies on an inexperienced radiologist for diagnosis of lesions of the urinary tract; the same is true in all of the other specialized fields.

(*b*) Radiology as practiced by specialists in other fields, such as gastro-enterology, cardiology, urology, orthopedic surgery and otolaryngology. The advantages claimed for this type of practice are as follows: (1) The method is somewhat more convenient for the patient and saves time, in that the clinical and radiologic examinations are made in the same office. (2) The specialist is able to interpret his roentgen observations directly in the light of his knowledge of the history and clinical aspects of the case. (3) It lessens the cost to the patient.

Examination of these claims in detail will show that, with the exception of claim 1, the advantages are more apparent than real.

It is conceded that it is more convenient for the patient and his medical attendant if all examinations are conducted in the latter's office; but convenience obtained at the sacrifice of efficiency is rarely justified.

With respect to claim 2, it is undoubtedly true that even a busy specialist does not have enough patients undergoing roentgen examinations to give him a wide experience in the interpretation of roentgen observations; and the very fact that he is busy prevents his giving the time and attention to details that are necessary to do good work. Often he does not realize that his work is inferior. There is a tendency to be satisfied with partial roentgen examinations and with inferior work when the roentgen work is more or less of a side issue instead of one's main activity. This tendency may be illustrated by practices that are common among specialists in a number of different branches. It is now common for internists, specialists in diseases of the chest and gastro-enterologists to examine patients with the fluoroscope as a routine. If the limitations of this type of examination were generally recognized there could be no criticism of this method; but, as

* From the Radiological Clinic of Drs. Groover, Christie and Merritt.

generally practiced, it is quite possible that it does more harm than good. For instance, a patient may have a small tuberculous lesion in the lateral aspect of the lung not discernible on the fluoroscopic screen. The patient's symptoms may be vague and the physical examination negative; and because this is borne out by a negative fluoroscopic examination the lesion is missed entirely, although it would be readily seen on good films. It is now well recognized that lesions in the chest and in the gastro-intestinal tract may sometimes be demonstrated on films which are not demonstrable on the fluoroscopic screen; and the opposite is also sometimes true. The best work is always done when screen and film examinations are combined.

It is rarely possible to secure consistently good technical work in roentgen-ray departments where there is only a small amount of work done, and especially is this true if the director is not thoroughly familiar with all technical details himself, as is very apt to be the case in the type of practice under discussion. To secure good technical work requires eternal vigilance by one who not only knows good work but also how to produce it. Roentgen-ray installations, too, in this type of practice, are rarely flexible enough to secure the best technical results.

All of the foregoing considerations apply to hospital practice even more strongly than to private practice. There is no good reason to multiply roentgen-ray installations in a hospital in order to permit various specialties to function independently. The internist and gastro-enterologist who wishes to examine his patients fluoroscopically should always find it not only feasible but advantageous to perform the fluoroscopy in the roentgen-ray department in consultation with the roentgenologist. A room for cystoscopy and pyelography should always be arranged in connection with the radiologic department so that the necessary roentgen examinations may be accomplished under the direction of the roentgenologist. The orthopedist will always find it advantageous to have a plaster room within the radiologic department so that he may be assisted by a roentgenologist if he wishes to undertake fluoroscopic reductions.

When, therefore, it is possible for other specialists to maintain reasonably close relations with a trained radiologist, either in hospital or in private practice, the advantages of claim 2 largely disappear, and the better results obtained far more than compensate for any extra effort required.

With respect to claim 3, the cost of roentgenologic examinations is necessarily increased in this type of practice because of the much larger number of roentgen-ray installations and personnel required to operate them. If specialists who do this type of work would keep a cost account to include interest on investment, obsolescence of apparatus, rent for floor space occupied, light, heat, janitor service, salaries of technicians and clerks, as well as cost of materials such as films, chemicals, roentgen-ray tubes and intensifying screens, it would soon be apparent that the cost to the patient must be increased instead of lowered by multiplying the number of roentgen-ray installations. The only saving possible would be at the expense of efficiency.

A SPECIAL BRANCH OF MEDICINE

I believe that radiology occupies so broad a field, that its technical difficulties are so numerous, and that interpretation of its results requires so broad an experience, that it constitutes a special branch of medicine. The interests of patient and profession are best conserved when it is so practiced. There are general practitioners who do some major surgery, a few gastro-enterologists who attempt abdominal surgery, and a few general surgeons who do work in the field of urology; but few would contend that the best results are obtained by such practices. It is my opinion that the same holds true for radiology. To master the technic of radiology and to acquire the necessary experience to interpret the observations in this field require as much application as it does to perfect oneself in surgery or in any of the specialties. I am referring, of course, not to a person who simply describes shadows seen on a fluoroscopic screen or film nor to a technician who makes films for some one else to interpret. The radiologist is a consultant with careful training and broad experience. He has a sound knowledge of pathology and is able to interpret his radiologic observations in terms of pathology. His general relation, then, to the surgeon, internist and various specialists is that of a consultant, and the desirability of frequent conferences on that basis cannot be too strongly emphasized. One of his most important relationships is with the general practitioner. In spite of the growth of specialism and of group practice, the general practitioner still does the bulk of medical practice and there are many indications that he is rapidly returning to the place of esteem which he formerly occupied. The radiologist who is constantly consulting with many general practitioners and also with specialists in every field is able to bring to the interpretation of every case a knowledge gleaned from many and various contacts.

Whether the radiologist is dealing with general practitioners or with specialists, it is desirable that he know something of the clinical aspects of the case. He may obtain these either from the patient or from the referring physician. In obscure or difficult cases, however, the best practice is for the clinician to inform the radiologist of the general aspects of the history and important clinical observations; then let them together decide on the type and scope of the radiologic examination. After the examination has been made, a further consultation will usually be of great value in arriving at a true diagnosis. It is also the experience of many radiologists that clinicians often value their opinion about further study of the case or about methods of treatment to be followed. The latter is, of course, especially true if the patient is suffering from some disease that may be benefited by radiotherapy.

I believe, therefore, that the practice of radiology has firmly established itself as a valuable special branch of medicine. It is founded on a knowledge of pathology and sound training in clinical medicine. Radiologists with such training and experience are qualified to serve as medical consultants and in the present state of medical practice are the best possible liaison between the general practitioner, the surgeon, the internist and the specialist in various fields. Radiology so practiced offers values to both the patient and the physician far beyond anything possible when practiced by otherwise able men with only meager training and experience in this field. The value of such work is of course entirely incomparable to the work of commercial laboratories conducted by laymen. It is only by subterfuge that such laboratories are able to evade the medical practice acts in most jurisdictions. This is usually accomplished by having reports of radiologic observations signed by a licensed physician only nominally connected with the concern. Even more pernicious and demoralizing than

the out and out commercial laboratories are the fee splitting radiologic concerns operating as stock companies, which have sprung up in different parts of the country. In these concerns, physicians are asked to subscribe for a nominal amount of stock and are given a liberal rake-off on all patients sent by them for examination. There are indications that such schemes are being extended to other branches of medical practice and, unless the medical profession can find a way to curb their activities, it seems that sooner or later public scandal will be inevitable.

SETTLEMENT OF CONTROVERSIAL QUESTIONS

The conception of radiology as a special branch of medicine fixes its position in the general scheme of medical organization and furnishes the basis on which a number of controversial questions must be settled; viz., the position of the radiologist in hospital practice, the method of establishing charges for radiologic work, and the position of radiology in the organization scheme of medical colleges, hospitals and various branches of the public service.

The position of the radiologist in hospital practice should differ in no respect from that of his confrères in medicine, surgery and the other specialties. He should be a member of the staff holding the same economic and professional relation to patients and to the hospital as do other members of the staff. The unwisdom of exploiting the radiologic departments for the benefit of the rest of the hospital is becoming apparent to the boards of management of many hospitals.

The fees charged by radiologists should be governed by the same considerations as those governing the charges of other physicians in their community. There is no excuse whatever for charges based on the number of films taken; the film is only a small part of the actual expense of making roentgen examinations. The interpretation of the radiologic observations both from fluoroscopic and from film examinations and the opinion of the radiologist as to their meaning in pathologic terms is the service offered and for which a fee is charged. In some cases such opinion may be very definite when based only on screen examinations, while in others, apparently similar, it may require one film or many films to secure all possible information. "Number of films" has been made the basis of charges by many compensation boards in industrial accident cases. It would be just as reasonable to require a clinician to base his charge on the number of microscopic slides he had examined.

POSITION OF RADIOLOGY IN SCHEMES OF ORGANIZATION

There is no common practice in medical colleges or hospitals with regard to the relation of radiology to the general scheme of organization. In some institutions radiology is a part of the division of surgery, in others of the division of medicine and in still others of the division of clinical laboratories. As a matter of fact, it belongs logically in none of them. In the medical department of the U. S. Army during the World War the department of radiology functioned at first in the Division of Laboratories and later in the Division of Surgery. Its best work was done when it was finally made a separate division responsible directly to the Surgeon General as were the other divisions. In hospitals and colleges, radiology must have a close relation with the department of pathology and clinical laboratories on the one hand, and, on the other, with all branches of medicine and surgery. It is logically a separate department and functions to the best interests of all concerned when it is so considered.

What has been said refers mostly to radiology in the diagnostic field. It applies even more forcibly to radiology in the field of therapy. As apparatus is becoming more powerful and consequently potentially more dangerous, it is increasingly apparent that it is a special field requiring long experience. There is a tendency to separate radiotherapy into two divisions, that in which the roentgen ray is used and that in which radium is used. As a general rule the best results are secured when a radiotherapeutist has both agents at his command and is able to control the total treatment.

CONCLUSION

Radiology is still a young and rapidly developing art and many changes may be anticipated as time passes. Experience indicates, however, that advances will be along safe lines and progress will be more rapid if the practice of radiology is largely confined to those who are especially prepared for it and who confine their work to this branch. It is broad enough to engage all the talent and energy that any man can bring to it.

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THE STATUS OF RADIOLOGY *

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The discovery of roentgen rays and radium came at a time when the development of surgery, made possible by the revelations of Pasteur and their successful application by Lister, was in full swing. It is but natural, therefore, that the first utilization of the discovery should have been in relation to surgery. Moreover, since the most striking feature of roentgen rays is their power to penetrate tissues in proportion to their density, it is not surprising that surgeons should have realized the significance of this new and invaluable method of studying the skeleton and its diseases. For a short time such investigation occupied medical attention exclusively and led to observations which amazed equally physicians and the public. Within a few months, however, it became obvious that, besides the uncanny property of traversing tissues and affecting the sensitive emulsion of a photographic plate, the rays also had a potent and destructive influence on tissue cells. The succeeding years were fruitfully employed in extending the diagnostic application of the method, on the one hand, and, on the other hand, in determining the action of the rays on various tissues and organs and their possible influence on different pathologic conditions. For a time progress was hampered by imperfection of apparatus, but it continued more or less steadily. Anomalies and diseases of the bones gradually yielded more and more of their secrets.

Attention was then focused on the respiratory system, and many pulmonary conditions imperfectly understood until that time became better known. The quest for knowledge in this direction has continued uninterruptedly ever since and has revealed so many new and valuable facts that roentgenologic examination of the respiratory organs is now a routine and essential procedure. The anatomic and pathologic relationship between the heart and lungs led to simultaneous investigation. First the movements of the heart, then alterations in the size and contour of the cardiac shadow

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were studied, notably by Groedel, and Vaquez and Bordet, who devised new methods and instruments to permit accurate measurement of the size of the organ. Valuable information concerning certain cardiac disorders was thus obtained, although such facts and the method by which they may be acquired have not yet been generally adopted. Roentgenologic investigation disclosed the inaccuracy of percussion as a means of ascertaining the size of the heart, and certain medical schools now make use of fluoroscopy to demonstrate this point to their students. Before 1910 it may be said that roentgenology was used chiefly in relation to traumatic and organic lesions of bone and to the pulmonary and cardiac apparatus. For diseases of the lungs, however, the apparatus available was still too imperfect and the time of exposure too long to yield sufficiently sharp detail for accurate interpretation. The same was true of the gallbladder and gallstones, the roentgenologic demonstration of which was made especially difficult by the movement of the diaphragm.

The period between 1910 and 1920 was featured mainly by improvements in apparatus and technic, and these were reflected in wide extension of the method to numerous phases of clinical medicine. The induction coil was replaced by the closed-core transformer with mechanical rectification, and gas tubes by the hot-cathode tube of Coolidge. The outstanding contributions of the decade were related to the gastro-intestinal tract and were made possible by the advent of the opaque meal. As a result of the work of Haudek, Cole, Carman and many others the roentgenologic diagnosis of gastric and duodenal ulcer became more and more accurate as those who made use of the method became more and more proficient. Other lesions of the small and large intestine also became readily discernible. The tremendous influence of these developments on the diagnosis and treatment of disorders of the gastro-intestinal tract can hardly be realized. The assistance which the roentgenologist was able to give to the surgeon diminished the responsibility of the latter, gave him added confidence, and greatly facilitated his task. In consequence, surgery of the gastro-intestinal tract became an open field. During this decade also cystography and pyelography made their appearance and recognition of many lesions of the urinary system became more and more a matter of training and experience.

During the last decade, however, radiology has advanced more rapidly than ever before, more rapidly, indeed, than any other branch of medicine, and from present indications such progress appears likely to continue for some time. Cholecystography, roentgenography of structures or organs injected with iodized oil, including the spinal canal, lungs, uterus and fallopian tubes, roentgenography after insufflation of gas or air, including the peritoneal cavity, fallopian tubes, and brain (encephalography), and intravenous urography have come to facilitate the diagnostic and therapeutic task of the physician.

The development of radiotherapy also has been marked by rapid progress. During the first few years therapeutic irradiation was limited largely to diseases of the skin, because the action of roentgen rays and radium on different tissues and organs was not known. But from about 1903 the experiments of Heineke, Albers-Schönberg, Bergonié and Tribondeau, Krause and Ziegler, Rudberg, Regaud and Crémieu, and hundreds of others, disclosed the fact that many varieties of cells are sensitive to the rays and are caused to undergo partial and transient, or total and permanent, degeneration. Gradually the radiosensitiveness of different tissues and organs was tested experimentally and the mechanism by which such effects are produced was partly or completely elucidated. Thus it became known that different kinds of cells vary considerably in radiosensitiveness, and such knowledge has led to the steady extension of radiotherapy.

At first the application of radiotherapy was largely confined to the destructive effect of radiation on superficial malignant growths. Later it was discovered that many inflammatory disorders of the skin are amenable to irradiation. Then the exceptional susceptibility of leukocytes, especially lymphocytes, and the remarkable resolving action of roentgen rays and radium on lesions characterized by lymphocytic infiltration or hyperplasia became more and more apparent. As a result, leukemia, lymphoblastoma and hyperplasia of the thymus came within the scope of radiotherapy. When the action of the rays on the spermatogonial cells of the testis and on the follicular epithelium of the ovary was revealed by the investigations of Albers-Schönberg, Regaud and others, this action was soon utilized to relieve hemorrhagic conditions and fibromyoma of the uterus.

Exhaustive research by Bergonié and Tribondeau yielded the information that young, rapidly growing cells are more radiosensitive than mature, adult cells. This, together with the still more important fact that each variety of cell has specific sensitiveness to radiation, constitutes the essential basis of radiotherapy and explains most of the effects noted after irradiation. During the last ten years the scope of this phase of radiology has expanded enormously. Irradiation by means of roentgen rays or radium is now accepted as the most effective method of treating fibromyoma and cervical carcinoma of the uterus, lymphoblastoma, giant-cell tumor and endothelial myeloma of bone, and embryonal carcinoma of the testis. Moreover, knowledge of the specific radiosensitiveness of different species of cells and of neoplasms derived from such cells is becoming a valuable factor in the identification of certain kinds of tumor. Not only are many varieties of neoplasm now treated by this method, but a host of inflammatory conditions as well. Indeed, the latter bid fair to outstrip the former in the next two years. These well known facts are mentioned only to bring out the point that within thirty-five years radiology has become an essential factor in medicine, a factor the significance of which is recognized by every physician.

In fact, diagnostic roentgenology has progressed so far that now some physicians, especially the younger members of the profession, place too implicit trust in roentgenologic data and neglect the traditional methods of examination. Although rays can never lie, lack of knowledge or experience may cause the roentgenologist to misinterpret the data furnished by roentgenography or roentgenoscopy. Indeed, excessive trust on the part of clinicians is a danger which the roentgenologist must be careful to avoid. In institutions, as well as in private practice, physicians often expect too much of the roentgenologist, who sometimes cannot make an absolute diagnosis. This is especially true when he is working without any knowledge of the history or clinical features of the case. Under such circumstances, when the roentgenologic signs are not distinctive, the roentgenologist should, and usually does, describe what he finds and mentions the conditions with which the roentgenologic appearance may be associated. To demand more than this is to require that which the referring physician

himself should furnish; namely, correlation of the history with the physical and roentgenologic data. Unfortunately, many physicians expect the roentgenologist to do the impossible, and rate him incompetent when he honestly admits failure or inadequacy. On the other hand, some roentgenologists, who are unwilling to confess inability, go beyond their province by making from their observations more or less unwarranted diagnostic deductions.

From the foregoing considerations, the increasingly important relation of radiology to every phase of medicine is obvious. It must be equally clear that the successful practice of radiology requires a broad and thorough training in medicine, a good working knowledge of certain aspects of physics and chemistry, and much special training and experience in the making and interpretation of roentgenograms, in the use of roentgenoscopy and many more or less intricate methods which have come in vogue, in the sensitiveness of different kinds of cells, tissues and organs to roentgen rays and radium, in the action of such rays on diseases affecting such tissues or organs, and in the physical methods of measuring the quantity and quality of radiation best adapted to influence favorably the lesions treated. It seems not only logical but essential, therefore, to require that such work be restricted to graduates in medicine. Such, unfortunately, is not the case at the present time. In every large city, so-called radiologic laboratories are operated on a purely commercial basis by lay persons who, by working for a time as aides to qualified medical radiologists, have familiarized themselves with the more common technical procedures. If they limited their activities to routine roentgenography and did not pose as capable of interpreting roentgenographic images, the harm would not be so great. But many of them do attempt to interpret roentgenograms, and, still more, such interpretation is accepted by many physicians who do not know the difference between such pseudo-radiologic service and the much more substantial assistance they might obtain from a well trained medical radiologist once they had learned how to utilize his services to greatest advantage.

Offices conducting commercial radiology of this kind could not possibly exist without the patronage of a sufficient number of physicians at least to cover expenses. That such a number are to be found is a serious reflection on the intelligence of many physicians. Such offices are patronized for one or several reasons: the fees are usually lower than those of expert medical radiologists; the office may return to the physician a certain percentage of the fee, depending on the number of cases referred; the requests of the referring physician are complied with without question, regardless of circumstances; although this may be flattering to the vanity of the physician, it does not furnish him the medical assistance he might otherwise derive, and it robs the patient of that quality of help and advice to which he is entitled. As Chamberlin pointed out, laymen could not continue to operate roentgen-ray laboratories if physicians ceased to send them any patients. Moreover, many such establishments would be forced to close if existing laws relating to the practice of medicine were rigidly enforced. Probably one reason why such enforcement is not insisted on is that the proprietors can almost always find a sufficient number of physicians to testify in their behalf. Chamberlin adduced two reasons for the patronage of lay establishments by physicians: failure of physicians to realize the benefit to be derived by the patient and his physician by consultation with qualified radiologists, and the feeling that such consultation is an admission of incapacity. If the referring physician is to obtain optimal assistance from the radiologist, the latter must be given reasonable latitude. Instead of ordering "a picture of the stomach," the physician should request an examination of the stomach, colon, or entire gastro-intestinal tract as the case may be. This would enable the radiologist to use different methods of examination, according to his own judgment, and the value of his opinion would be correspondingly increased. After all, it is the opinion of the radiologist that matters; the roentgenographic or roentgenoscopic appearances are only means of forming an opinion. A responsible medical radiologist will naturally see to it that the patient is not subjected to unnecessary examinations. If the patient's circumstances require special consideration, the attending physician should confer with the radiologist to avoid misunderstanding and excessive charges.

Another phase of this question affects hospitals and other institutions for the care of the sick. A common arrangement in many hospitals is for a professional radiologist to come daily to interpret roentgenograms and to pass on other problems of diagnosis or treatment. Often the radiologist maintains a private office downtown and acts as consultant or attending radiologist to two or more hospitals. Under such circumstances, his attention is concentrated chiefly on his private practice, and the time he spends at each hospital is often too short for effective supervision. When the exclusive service of an experienced specialist is out of the question, two or three hospitals might well arrange to divide between them the services and cost of such a specialist, from whom the privilege of private practice should be withheld.

During the last few years there has been a tendency on the part of such institutions to replace experienced medical radiologists by young and inexperienced men whose services may be obtained at a lower salary. The motives behind such a step are seldom clear, but in some instances the suspicion has arisen that the measure was prompted by the desire of the hospital authorities to make it possible for them to appropriate for other purposes the difference in salary and any profit made by the department of radiology. While this may be true, it must be realized that the increasing cost of operating hospitals often places the authorities responsible for their maintenance in a difficult position, and they are often tempted and sometimes actually led to adopt rash or unsound measures to cover the cost of certain departments which cannot sustain themselves. In any event, there cannot be any wisdom in replacing an expert by an inexperienced department head, and, regardless of the motive, such action represents a short-sighted policy.

Worse still, however, is the common practice among small or medium-sized hospitals of employing a so-called technician to make roentgenograms the interpretation of which is undertaken by the referring physician himself. Granting that a few physicians may have acquired a certain proficiency in recognizing some of the salient roentgenologic features of the more common pathologic conditions with which they have to deal, the number of those who can compete in this respect with an experienced specialist in roentgenology is so small as to be negligible. The result of such practice, therefore, can only be inferior work, which is detrimental to the patient and does not increase the professional ability of the physician or contribute to the advance of medicine. Moreover, in institutions

where such a situation obtains, roentgenoscopy is almost always neglected or does not yield the information that might otherwise be obtained. But if inferior diagnostic roentgenology must result when the procedures are delegated to a technician working without the supervision of an expert medical radiologist, what must be said when, as so often happens, therapeutic radiology is so conducted? Extended experience forces me to say that treatment by roentgen rays or radium, carried on in such hospitals, is almost always inferior and often worse than useless. Fortunately, some hospitals which belong to this category do not allow their technicians to undertake treatment. In others, however, a member of the medical or surgical staff, whose knowledge of radiotherapy is less than embryonic, assumes nominal supervision over the technician; but usually this is only a means of circumventing the law or of protecting the hospital in the event of some medicolegal imbroglio.

At the present time radiotherapy of high grade is a rare commodity. Almost every hospital and private radiologist undertakes such treatment, but the common lack of training and experience, and especially the failure to give to such work the care and supervision it requires, either robs the treatment of any value or leads to unnecessarily frequent catastrophes. Too often treatment by roentgen rays is left to the judgment of technicians, and patients are treated without careful preliminary examination. Incredible as it may seem, it is not rare for such treatment to be given through the patient's clothing. When such is the conception of radiotherapy, why go to the expense of costly apparatus? An ordinary incandescent light bulb would serve the purpose just as well, would do as much good, would be far less dangerous, and would lead to fewer law suits. In many hospitals throughout the country, radiotherapy is undertaken on the assumption that such work is purely a matter of apparatus and because of the false pride of boards of trustees who feel that their hospital must be capable of dealing with any medical problem. Nothing could be more misleading. The chief factor in treatment by roentgen rays and radium is trained and experienced personnel; equipment is secondary. Hundreds of hospitals are tying up large sums of money in elaborate equipment and hiring an inexperienced radiologist, untrained or ill trained in therapeutic radiology. Moreover, the work of the hospital often does not warrant such expenditure. Thousands of dollars have thus been sunk in roentgen-ray generators or in radium when there is no one on the staff who is qualified to direct treatment. The sooner such practices and conditions disappear, the better for the good name of medicine; but they will not disappear until the standards of radiologic training and practice are raised, and until the number of soundly trained radiologists is sufficient to meet the requirement.

What is medical radiology? It is primarily the application of radiology to medical diagnosis and therapeusis. This involves the use of intricate apparatus and special methods, but it involves first of all a knowledge of medicine. It must be obvious that the mere possession of equipment and familiarity with technical procedures are secondary to thorough instruction in the sciences that constitute the foundation of medicine. Else any one might purchase apparatus, acquire a modicum of technical baggage, and undertake to practice the healing art. And why not? Although medical radiology is progressing rapidly, the majority of physicians do not yet realize the possibilities and limitations of radiology as it affects medicine. Such realization by the rank and file of the profession necessarily must be slow. Nevertheless, the number and complexity of new radiologic methods, affecting nearly every phase of medicine, are increasing so rapidly from year to year that it is inconceivable that their utilization can be left in the hands of persons who are not medically trained or who are poorly trained in medicine. More and more must the radiologist be regarded as a medical specialist, to be consulted as such, and less and less must he be looked on and treated as a queer being who sees things, inhabits dark places, juggles with atoms and ions, and speaks a strange language.

But if this desirable and essential goal is to be attained, the number of competent radiologists must be increased. The number now available is far too small. Unfortunately, such increase is hampered by two serious factors. One is the lack of thorough graduate instruction in radiology; the other is the difficulty of inducing young physicians of the highest ability to take up radiology as a career. As far as the teaching of radiology is concerned, most of the class A medical schools provide adequate undergraduate instruction, designed to give the medical graduate general understanding of the subject, and to enable him to know the kinds of cases in which radiologic examination or treatment may be necessary or useful. In some schools, however, the instruction is not well balanced. Too often radiotherapy is neglected and diagnostic roentgenology overemphasized. In some instances, indeed, instruction in the diagnostic aspect of the subject is too detailed and goes beyond the requirement of general practice. The result is that when students who have taken such courses enter private practice they are often tempted to purchase equipment and to undertake roentgenologic diagnosis, and sometimes treatment also, for and by themselves. Usually this is a mistake which only serves to lower the level of medical radiology.

The crying need is for complete instruction of the highest grade to enable medical graduates to qualify as full-fledged specialists. Undoubtedly, the major reason for the comparative lack of such courses has been the difficulty of medical schools to find teachers who can measure up to certain academic standards, and perhaps a feeling on the part of those responsible for medical education that radiology has not yet reached its majority. This, however, is no longer true. The only real difficulty that persists is to find radiologists qualified to teach radiotherapy. Any graduate course worthy of the name, and comparable with courses available in several European countries, must devote about equal attention to the diagnostic and the therapeutic phases. Heretofore, in this country, owing to the influence of certain prominent roentgenologists who have devoted all their attention to roentgen diagnosis and who have not interested themselves in treatment, radiotherapy has never received the attention it deserves. Its growing importance, however, is even now breaking through the doors which have been closed against it.

As for the desirability of radiology as a career, there is no doubt that it furnishes the best opportunity in medicine today. To those who may consider this statement excessive I need only point out that radiology is a fresh, fertile and uncrowded field in which the ambitious and well trained young physician can make an enviable place for himself more rapidly than in any of the older branches. For years the glamour of surgery and the legend of its rich rewards have enticed thousands of medical graduates to struggle to obtain

what was regarded as adequate training for surgical practice. But as the number of such postulants increased, the average returns diminished and competition became more and more intense. This led to overemphasis on surgical treatment, and for a time it seemed as if all human ills could be corrected by removing this or that organ. Naturally, such excess could not last indefinitely. As the profession came to realize that nature cannot be made over with a knife any more than people can be driven into heaven by legal fiat, surgery has gradually become more conservative and the number of surgical operations has diminished in proportion. During the last ten years the number of medical graduates seeking a surgical career has been steadily decreasing, and more and more graduates have been turning their attention toward internal medicine or some other specialty. Of all the specialties radiology now provides the most promising opportunity, but he who would cultivate this field must prepare himself thoroughly and must not expect to become a millionaire over night.

Two chief reasons have prevented able young physicians from choosing radiology as a life work. One has been and still is fear of a deleterious effect of radiation on the physician's own health. Such fear no longer has any basis, because modern methods of protection, if applied, make radiology as safe as any other human activity. The remaining reason, however, is still a powerful deterring factor and this is the common tendency of hospital authorities to exploit the department of radiology unfairly, and thus to remove the incentive to high-grade work by reducing the remuneration to which the radiologist is justly entitled. Ambitious young physicians cannot be attracted to radiology unless it offers returns commensurate with the quality and the relative importance of their work, and reasonable chance of advancement. One element of the situation which, in larger hospitals, has a more or less significant bearing on this phase of the question is the artificial division which has been allowed to grow up between diagnostic and therapeutic radiology. Too often these two aspects of the subject are divided into separate, brain-tight compartments, under different and independent heads. It is clear that if a hospital must employ two distinct heads, it cannot pay as much to each as it could afford to pay a single head. Mention of this point usually raises the argument that the differences between diagnostic and therapeutic radiology are such that separate operation is feasible and rational. Feasible, yes, but rational, no; at least, not if the best interests of radiology and medicine are to be promoted. Separate operation has developed mainly because of the difficulty of finding men qualified in both phases. In a few very large institutions the number of patients may be such that subdivision of the department of radiology may have to be considered; but such conditions are exceptional and should not be regarded as ideal, because they tend to overspecialization. Another example of overspecialization is found in certain institutions where radiology is subdivided still further to provide special service for other departments. Thus the department of dermatology may demand its own facilities for treatment by roentgen rays or radium; the department of urology may desire its own facilities for roentgenologic diagnosis; the gynecologists may insist on a separate supply of radium for their own purposes. Such demand may arise from the radiologist's lack of interest in or inadequate attention to such work. If he cannot be made aware of such deficiency, or if, as is usually the case, the deficiency results from press of other work, the most rational solution lies in adding to the radiologic staff some one with special training in dermatology, urology or gynecology, as the case may be. Few specialists in other branches ever acquire a sufficient knowledge and understanding of radiologic physics and chemistry to become technically expert. Hence, the level of work carried on in this fashion is not likely to be as high as when it is performed by a radiologist with special training in the particular branch. Moreover, to subdivide radiology in this way is materially to increase the cost of maintenance. In the majority of hospitals, and especially in those affiliated with medical schools, unified practice and teaching of radiology are essential to insure well balanced development of the subject.

SHORT WAVELENGTH RADIATION

PRESENT STANDARDS FOR MEASURING QUANTITY AND QUALITY

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The exact measurement of roentgen rays is primarily of importance in therapy to prevent damage to the patient's skin and to estimate the maximum effect on the tissues to be treated. The quantities of radiation used in radiography are usually so small a fraction of a skin erythema dose, rarely exceeding 10 r, that there is little risk of producing any damage to the skin unless exposures are repeated at too great frequency. It is, however, always wise before taking a picture, and especially before giving a treatment, to ask the patient whether he has recently had an x-ray exposure. Serious burns have resulted from a patient concealing the fact that a few days before he has had a heavy treatment or numerous exposures for radiologic purposes. In fluoroscopy also a rough approximation of the erythema dose should be known and the patient as well as the operator should be exposed for the minimum time that will permit the necessary observations. The amount required for fluoroscopy is usually not in excess of 20 r per minute. All the risks of an erythema with its attendant legal responsibility will be obviated by careful inquiry of the patient as to previous irradiation. If the patient does not furnish the information, as is occasionally the case, no legal responsibility can be laid on the physician. Every record sheet, therefore, either for treatment or for radiography, should have printed on it four inquiries: 1. Have you ever had a radium treatment? 2. An x-ray exposure? 3. An exposure to light? 4. Are you applying any substance to your skin or taking any medicine?

Usually the use of artificial light therapy will be evident on the patient's skin, but it is well with the present popular abuse of such treatment to have the question printed on the records. The nurse or the person who takes the history should check each one of these questions. The reason for the inquiry about drugs is that certain ointments which contain irritating substances, mercurochrome-220 soluble, iodex or iodine applications, iodoform on the skin or in sinuses, and considerable quantities of either bromides or iodides of potassium given internally, have on occasion seemed to sensitize the patient and cause injury to the skin with amounts of irradiation that otherwise would have been harmless.

The measurement of roentgen rays for therapy may be considered under three headings: (1) supersoft

rays, which are roentgen rays generated at 10,000 volts or less; (2) ordinary therapy rays from 60,000 volts up to about 150,000, and (3) high voltage therapy up to the present approximate limit of 200 kilovolts.

SUPERSOFT RADIATION

The supersoft rays are absorbed very largely in the superficial layers of the skin, so that the surface dose is the only factor of importance to determine. Pastilles may be used or an ionization apparatus with a small chamber with thin walls of gold beaters' skin or similar material; but the dermatologist who is the only one who uses this type of radiation will in most instances calibrate his tube by experimental erythemas and then not change the settings on his control table. The yield of radiation falls rapidly if the tubes are heavily used from the deposition of metallic vapor from the anticathode on the thin Lindemann glass window.

MEDIUM VOLTAGE RADIATION

With unfiltered radiation at 60 to 70 thousand volts used by dermatologists, an indirect method of measurement is widely used. The factors that govern the use of unfiltered dosage are that (1) the quantity of the x-rays varies according to the square of the voltage; (2) it varies directly as the milliamperage, (3) as the time, and (4) inversely as the square of the distance. The use of an exposure formula based on these factors assumes a fairly accurate measurement of voltage and a carefully standardized milliammeter. Remer and Witherbee [1] and MacKee found that on the human skin of average sensitiveness a definite erythema could be produced with 3 milliamperes, 64 kilovolts, a skin-target distance of 8 inches and 5 minutes exposure, the size of the irradiated field being about 1 inch in diameter. The standard formula then is

$$\frac{\text{Ma. } 3 \times \text{KV } 64 \times \text{KV } 64 \times \text{T.5 minutes}}{\text{Distance } 8'' \times \text{Distance } 8''} = \frac{61{,}400}{64} \text{ or } 960 \text{ units.}$$

This is one full average erythema dose, or one skin unit. When large areas, say 8 by 8 inches, are exposed the time should be reduced some 20 per cent to allow for back scatter. Many use these factors as a standard and never vary them in treatment. Others prefer a different grouping. The important matter to remember is the great change produced by altering the skin focus distance; doubling the distance reduces the dose four times; halving it increases it four times. The voltage also alters the tube output rapidly and therefore must be determined as accurately as possible. By using this formula a table can be made up of exposures at varying distances and currents. Similar tables can be constructed for various voltages. A number of these tables have been computed by George M. MacKee [2] and should be copied and hung near the control desk of the x-ray apparatus. Slight variations occur in determining the voltage by a spark gap due to changing humidity, and very considerable variations may be noted at high altitudes. Temperature and ordinary barometric variations have but little effect. For accurate measurements only gaps with spheres of a prescribed diameter are now used.[3]

Before one accepts the voltage readings on the voltmeter accompanying the apparatus as correct, they should be carefully checked by various spark gap determinations at different voltages. After such a control has been completed, checks of the erythema dose should be made on the skin of the flexor surface of the forearm of the operator or on a patient. When a tube is changed a fresh control should be made, as the output of different tubes may vary as much as 10 per cent. Occasionally a tube may show as great a difference as 50 per cent. Records of the settings of the voltage and resistance switches should be written on a chart and hung near the control table so that no mistakes will occur. The operator should always inspect the control tables if they have been cleaned by a technician or if repairs have been made on the apparatus, that the setting may be exactly that desired. Not infrequently the controls are moved during such procedures.

If filters are used, the factor table for unfiltered rays is not valid. It should be remembered, also, that the skin tolerance varies with the age, complexion of the patient, and the location of the exposure. Children and persons with hyperthyroidism should be given smaller doses. The skin of the back is less sensitive than that of the chest, but for standard controls the flexor surface of the forearm or the inner aspect of the thigh should be chosen.

If filters are used, a fresh series of factors must be obtained, the erythema formula being different with each thickness of filter used. Changes in the voltage make greater differences in dosage with filtered than with unfiltered radiation. Instead of varying as the square it may even vary as the fifth power. Dosage charts for varied filtrations for superficial therapy will be found in MacKee's book.

Some dermatologists prefer to make direct observations of the dosage by the photographic method or the pastille method. An apparatus for the use of the photographic method has been constructed by Kienböck. His "quantimeter" is made in Germany and it is supplied with full directions for use. This technic is little used in America as it is time consuming and not especially accurate.

Another method, which is more practical and more widely employed, is that of Sabouraud, who suggested that small cardboard pastilles covered with barium platinocyanide be used. The salt is a greenish yellow but changes to an orange tint on exposure to x-rays. Sabouraud made possible the estimation of the erythema dose by preparing a standard set of tints to match various exposures. Various improvements have been made on the method of reading the tints. The Holzknecht apparatus is very satisfactory. It is made in Germany and has a colored standard celluloid band which can be moved along a scale and thus determine with some accuracy change in color of the pastille.

Another apparatus is the Cox radiometer, which has a series of tinted glass disks, permitting the matching of the pastille color with considerable accuracy. The pastille method is satisfactory for dermatologic practice. It does not give accurate enough measurements with highly filtered radiation. The use of the pastilles has been largely abandoned in recent years and replaced by some type of ionization chamber. The use of the ionization chamber depends on the phenomenon that when x-rays pass through a gas, and air is used for convenience, the gas is ionized and thereby becomes conducting and the measurement of such conduction under fixed conditions furnishes a measure of the biologic action of the radiation tested.

1. Witherbee, W. D., and Remer, John: X-Ray Dosage in Treatment and Radiography, New York, Macmillan Company, 1922.
2. MacKee, G. M.: X-Rays and Radium in the Treatment of Diseases of the Skin, ed. 2, Philadelphia, Lea & Febiger, 1927.
3. Tables and technic are described by Terrill and Ulrey: X-Ray Technology, New York, D. Van Nostrand Company, 1930. Mayneord: The Physics of X-Ray Therapy, London, J. and A. Churchill, 1929. Standard Handbook for Electrical Engineers, New York, McGraw-Hill Book Company, Inc., 1922.

In order to use the ionization method it has been necessary to establish a standard, and at the Second International Congress of Radiology held in Stockholm in 1928 an international unit of quantity, called "the roentgen," was adopted. This roentgen unit is designated by the small letter r. The definition of the international unit of quantity is "the quantity of x-radiation which, when the secondary electrons are fully utilized and the wall effect of the chamber is avoided, produces in 1 cc. of atmospheric air at 0 C. and 76 cm. of mercury pressure such a degree of conductivity that 1 electrostatic unit of charge is measured at saturation current." When measured in air at a temperature of 20 C. the unit is about 7 per cent larger than that at 0 C. The number of such r-units required to give a skin erythema is about 500 r measured in air. On the skin the back scatter from the tissues increases this to about 650 r.

Perrin is to be credited for the simplest type of such an ionization chamber. This consists in its most elementary form of two insulated metal plates between which a beam of x-rays of sharply defined dimensions is permitted to pass. This ionizes the air between the plates, and if a potential difference is established between these plates a current will flow between them which can be measured by a sensitive galvanometer or by the discharge rate of an electrometer. If the electrometer or the galvanometer is calibrated by comparison with a standard cell, it is possible to compute the number of electrostatic units produced in a measured volume of air exposed to the x-ray beam. The plates must be so far apart so that neither x-rays from the direct beam nor long range electrons can reach them, as otherwise secondary electrons would be set up from their action on the metal of the plates and alter the readings. Standard chambers of this type with the addition of guard plates and other refinements have been designed by Duane, by Behnken of the Reichsanstalt in Berlin, and by Glasser. The details of the manipulative technic need not be given here for it will be found in Terrill and Ulrey,[3] but it is evident that the apparatus is bulky, expensive, difficult to manage, and impossible of use for routine standardization of an x-ray tube by those who have no training in physical technic. Such a chamber, however, is the standard by which the more rugged and convenient types of instruments may be calibrated in roentgens.

A considerable number of forms of commercial apparatus for measuring x-rays by ionization are available. These are expensive, easily damaged and difficult to use. Most workers are satisfied occasionally to measure the output of their tubes under fixed conditions and then to use the apparatus without changing the controls. It is safe to assume that relatively little variation takes place in the output in the course of a few weeks. Ultimately the anticathode of the tube becomes roughened by the electron impact and the output from a given tube fails considerably. For practical purposes, if the measurements are made every two weeks, no risk is run of overdosage. The ideal arrangement obviously is to have an ionization chamber fastened to the apparatus under the filters and a galvanometer which shows the intensity of the beam placed near the control table so that the exact intensity of the x-rays from the tube may be noted while the patient is being treated. As yet there is no convenient commercial appliance which fulfils these requirements. Instruments of this form have been devised by Duane, Weatherwax and others and can be made by a skilled mechanic, but they are not extensively used. A convenient ionization chamber has been devised by Kegerreis in which the x-ray beam strikes a series of tinfoils and the resulting ionization current can be measured by a rugged, portable galvanometer. Such an ionization chamber does not measure roentgens, so that it must be calibrated by a standard ionization chamber, and this calibration table must be used to correct the readings of the galvanometer. The reason for this is that the rays as they strike a heavy metal give off secondary radiations characteristic of the metal, and these give an intense ionization of the air near the foil; but the amount of this ionization varies with the wavelength of the x-rays. This is of no importance if the apparatus is calibrated in roentgens. Other types avoid this dependence on the wavelength of the x-rays by using a chamber made of graphite or horn or some substance whose scattering corresponds to the tissues in the body. The chamber is very small, the capacity being only a centimeter or so, and it is placed at the end of a long rod or flexible cable. Into the interior of the chamber projects a small insulated rod. The voltage is applied to the chamber and the rod, and the current between the two, when the chamber is exposed to radiation, is measured by an electrometer of some type. The scale of the electrometer may be so graduated as to read in roentgens. The voltage for these experiments may be supplied from the street current if a direct current is available. Otherwise rectification is necessary by some type of thermionic valve tube or other apparatus. This immediately introduces complications. In the Kegerreis type of ionization chamber, the high voltage necessary is produced by a transformer and valve rectifier. A similar principle for magnifying the current is used in the Siemens dosimeter. Another apparatus, sold under the name of Mekapion, depends on similar arrangements. The use of a selenium cell has been suggested, for it is well known that when x-rays fall on a layer of selenium the electrical resistance of the substance falls, and an apparatus employing this phenomenon has been devised by Furstenau; but the readings are difficult to standardize, and the selenium cell seems to vary a great deal for unknown reasons. The apparatus has therefore not been widely used. In America the most available is the "Victoreen" devised by Glasser, in which a small chamber of special composition, together with an electrometer, is used. The image of the electrometer thread moves across an illuminated scale and with a stop-watch the number of roentgens per minute can be measured. The Glasser chamber is free from wavelength effects from 60 kilovolts upward. Below this voltage a special chamber must be substituted for the regular one furnished with the apparatus. Nevertheless even this apparatus is fragile and requires expert handling. It is evident that there is still room for the development of a simple, cheap and accurate method of measuring the output of an x-ray tube. The employment of an apparatus which requires the skill of a physicist may be possible theoretically, but practically few institutions can afford the additional expense necessitated. In institutions where radium also is employed, the technical staff who make the measurements of the radon content of the tubes as they are filled for use are of course capable of carrying on at the same time accurate measurements of x-rays, the principles employed being much the same. It is impossible as yet, however, to measure radium in roentgens with an open ionization chamber. The extraordinary penetrating capacity of the gamma rays from

radium make it impossible to shield the plates of such a chamber from the rays, so that the only measurements which have been published are indirect. As Wood and Packard have shown that the lethal effect of x-rays on both tumor cells and *Drosophila* eggs is independent of the wavelength from 10 up to 550 kilovolts, that is, from 2 to 0.05 angstroms, and have also shown that the gamma rays of radium when measured by *Drosophila* eggs and tumor cells correspond to erythema doses on the skin, it is probable that it will be found that radium gamma rays when measured in roentgens also are independent of the wavelength; that is, that the same number of roentgens with wavelengths of from 2 to 0.05 angstroms have the same lethal effect. The use of tumor cells or flies' eggs as a method of measuring roentgens is possible, but a certain technical skill is required in handling these biologic materials, though the flies' eggs have been used continuously for some years for standardization purposes in one radiotherapeutic clinic. The flies' eggs, however, can be used by the makers of apparatus to calibrate such apparatus in units, and the procedure is somewhat simpler and nearly as accurate as the elaborate set-up required to obtain unimpeachable measurements with a standard chamber.

If, then, the death of the individual cell is independent of the wavelength, the determination of this wavelength becomes important only when the question of depth dose (penetration) arises. In other words, a lesion of the skin can be treated with any wavelength that may be available, provided the penetration is sufficient to reach the bottom of the lesion; and if the same number of roentgens is given in the same time the effect on the growth will be the same. This has already been shown over a wide range of wavelengths for the skin erythema. The wavelength is, however, important in determining the depth dose; that is, the percentage of the surface intensity compared to that reaching a depth of 10 cm. If a skin lesion only is to be treated it would manifestly be improper to use highly filtered high voltage x-rays if the skin lesion lies over sensitive internal organs. This depth dose also depends on the area of the surface struck by the x-ray beam, being much less when the portal is narrow than when it is large. This phenomenon is of course due to secondary scattering from the tissues. If the portal is of limited area, the lateral scatter is small, whereas if the portal is large, say from 10 to 20 cm. in diameter, the lateral scatter from the tissues increases the depth dose. This depth dose can be measured directly by employing a tank of water and placing one of the small thimble ionization chambers first on the surface of the water and then 10 cm. below, and varying the portal. But it is simpler to obtain these figures from standard measurements, which are available in every textbook on x-ray therapy and can be obtained also in chart form. These charts are made up for a variety of wavelengths, or, what is the same thing, voltages, and with varying portals, so that the amount at various depths can be read off with fair accuracy. Charts of anatomic cross-sections have been published by Holfelder and also Desjardins, and the measurements for irradiating a definite point can be made by a cyrtometer tracing of the dimensions of the body and the depth dose determined for any specific point.

As the amount of short wavelength x-rays that come from a constant potential apparatus is slightly greater than that furnished by an apparatus with mechanical rectification of the current, the accuracy of the records is increased by specifying in addition to the time, voltage, milliamperage and filtration the average wavelength of the beam. This may be determined in two ways: by what is called the half value, which is the thickness of a given metal foil, usually copper, which reduces the initial intensity of the x-ray beam to half. The use of this value as a standard was first suggested by Christen,[4] and tables have been published by Meyer and Braestrup,[5] for instance, which facilitate the determination of the half value layer, provided an ionization apparatus is available. Duane [6] has suggested another standard, which he calls "average or effective" wavelength. This is obtained by measuring the intensity of the beam without filtration and then with filters, one 1 mm. of copper and the other 4 mm. of aluminum. From a chart in Duane's paper the effective wavelength can be read off, which is the wavelength of a monochromatic beam of x-rays which gives identical absorption in a given thickness of material. Because of the influence of the voltage wave form and the condition of the target surface on the quality and intensity of the x-rays it is evident that the half value or the effective wavelength of a beam, together with the intensity in roentgens, gives a more accurate estimate and more easily reproducible measurement than the voltage and the milliamperage through the tube.

The shortest wavelength in angstrom units produced by a given voltage is 12.3 divided by the voltage in kilovolts. The wavelength having the greatest intensity is about 1.3 times this. The voltage can be accurately determined by a spectrograph, of which several commercial types are available though in practice these are but rarely employed.

There is another factor concerning which there is still some difference of opinion, and that is the rate at which a dose is administered. It seems probable from Regaud's biologic experiments and from clinical observations made under his supervision that lengthening of the time of exposure increases the differential between the effect of the rays on the tumor tissue and on the healthy structures. In other words, if the radiation is given at low intensity, the normal structures can repair the damage which they receive and avoid irreparable injury, while the cells of some, though not all, tumors are not susceptible of such effective repair and thus may be damaged or destroyed by prolonged irradiation, when a more rapid administration of a given quantity of energy would not produce so satisfactory a therapeutic result. It has been estimated by Weatherwax and others that the normal tissues regenerate between 3 to 10 per cent daily, depending on the wavelength of the radiation. The effects of short wavelengths fade less rapidly than those of long. This is the basis of the so-called saturation method of treatment and of the extraordinarily large doses of highly filtered radiation administered in the Regaud clinic in Paris, where as much as 8,000 roentgens of highly filtered x-rays may be administered to suitable patients in the course of ten days or two weeks.

The measurement of radiation given by radium or the gas that it gives off, radon, is expressed either in milligrams of radium element or in millicuries, which is a thousandth part of the radiation given off by the radon in equilibrium with a gram of radium. The quantity of radon equivalent to a gram of radium is 0.6 cubic

4. Christen: Messung und Dosierung der Röntgenstrahlen, Fortschr. a. d. geb. d. Röntgenstrahlen, 1913, Ergänzungsband 28.
5. Meyer, W. H., and Braestrup, C. B.: Radiology **11**: 72 (July) 1928.
6. Duane, W.: Am. J. Röntgenol. & Rad. Therap. **9**: 167 (March) 1922.

millimeter at 0 C. Thus the dose is expressed in milligram hours or millicurie hours. The radiation from radium is constant; that from radon diminishes, reaching one half of its value in 3.85 days. European radiologists employ the number of millicuries destroyed as a measure of the dosage. The rate of destruction of one curie of emanation is 7.47 millicuries per hour; hence if 1,000 millicuries of emanation is used, the dose for one hour is 7.47 millicuries destroyed. The measurement of radium preparations or of radon is made by the use of an ionization chamber, a sufficient thickness of lead being used to eliminate the alpha and beta rays. A known quantity of radium is used as a standard to calibrate the apparatus so that the gas, radon, is measured in terms of gamma rays from radium. Thus a milligram of radium and a millicurie of radon have an equal value at the moment of measurement. The radium remains constant, while the radon decays. At the end of thirty days the radon has for practical purposes completely decayed and, if the initial dose is a millicurie, the total dose in thirty days will be 132.7 millicurie hours. Tables are furnished in the standard textbooks for the easy computation of doses.[7] It is impossible to determine practically the quality of the radiation given off by the radioactive elements. The biologic dosage, therefore, is determined by tests through the filters employed, and standard tables are given in the books mentioned for the erythema skin dose with given quantities of radium or radon, with a selected filtration and a fixed distance from the skin. Three methods are used for radium applications: First, a single large source known as a radium pack may be used at a distance from the skin of from 10 to 15 cm. The depth dose of a radium pack at a distance of 15 cm. is about the same as that of the beam of x-rays with a 10 by 10 cm. portal at 200 kilovolts and 1 mm. of copper filtration; that is, approximately 30 per cent at a depth of 10 cm. Second, a large number of tubes containing small quantities of radium, rarely more than 2 to 5 mg. or mc. of radon, are placed over a considerable area on a framework of wax. Such distribution avoids the point source distribution of the radiation and gives larger depth doses than when the radiation is concentrated in a small area. Illustrative distributions with depth doses are given in a paper by Marie.[8] The erythema dose on the skin in both these methods must be determined by experiments on patients. A third method is to insert in the tissues small metallic needles or tubes containing either radium or radon, usually spaced about 1 cm. apart. Such needles rarely contain more than 1 or 2 millicuries. The needles may be withdrawn if the element is employed or left in situ if radon is used. The computation of the exact dose received by any individual portion of the tissues is under these circumstances impossible, and only approximations can be given. Tables are furnished in the texts mentioned, and should be consulted by those who are using radium.

In a general way, then, the effects of radium are estimated largely by direct methods in contrast to x-rays, in which the measurements are more often indirect. It has not been possible as yet, because of technical difficulties, accurately to measure radium in terms of roentgens.

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7. Weatherwax: Physics of Radiology, New York, Paul B. Hoeber, Inc., 1931. Kaplan: Practical Radiation Therapy, Philadelphia, W. B. Saunders Company, 1931.
8. Marie, T.: J. Cancer Research **11**: 377, 1927.

SAFETY FOR RADIOLOGIST AND PATIENT IN DIAGNOSTIC AND THERAPEUTIC RADIOLOGY

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The discovery of the therapeutic properties of x-rays was the outcome of the observation of damage to tissues as the result of prolonged exposure. Any therapeutic agent that is dangerous to tissues or to life must be administered according to standardized dosage, which must be determined by experience and animal experimentation. Before the dangerous properties of x-rays were known, some of the early patients were the victims. Steps were then taken to attempt to prescribe a safe limit for irradiation, but several years elapsed before this could be accomplished in an entirely satisfactory manner. The operator of the equipment was exposed to the radiation to a less amount than the patient, but continually, and the early roentgenologists, technicians, and even manufacturers became the victims of damage to their skin which was later found to be irreparable. The chronic and irritated ulcerations became the seat of cancerous degenerations in many instances, and death took a heavy toll among the pioneers in a new branch of medical science. Sterility and aplastic anemia were additional unfortunate developments. As a result of these untoward effects, protective measures have had to be devised for those who work with this agent and also with radium. The development of high powered equipment and the autotransformer control have added the additional danger of electrical shock against which protective measures have been required. The film fire hazard has become a more recent menace, requiring very stringent regulations. Lastly must be mentioned the undesirable and annoying "irradiation sickness," which can be controlled in a measure but cannot be altogether avoided.

Preventive or protective measures against excessive radiation can be discussed separately from the standpoint of the patient and the operator. Electrical shocks endanger both. Irradiation sickness is a condition of the patient alone. Safety regulations have been adopted in several countries. Those proposed by German and British radiologists were discussed in a conference at the 1928 radiologic congress, at Stockholm, but no definite unanimity of opinion was established. The United States Bureau of Standards was represented at this conference. Three years ago, an Advisory Committee on X-Ray and Radium Protection was formed by appointed representatives from the American Roentgen Ray Society, the Radiological Society of North America, the American College of Radiology, the American manufacturers of apparatus, and the United States Bureau of Standards. This committee has just completed the X-Ray Safety Regulations, which will be published in a short time as a Bureau of Standards circular by the joint committee. Even though so published, the regulations cannot be compulsory but must be offered as recommendations. The subject of radium protection has not yet been taken up. If the x-ray protection recommendations are carefully followed, the dangers from accidents will be decidedly reduced. There remain the human element, unusual susceptibility, and the impossibility of absolute dependence on perfection of mechanical devices as occasional sources of accident or untoward effects which cannot be entirely eliminated.

EXCESSIVE IRRADIATION

The subject of excessive irradiation must be discussed from the standpoint of the patient and from that of the operator.

The Patient.—Untoward effects on the exposed patient may be classified as acute manifestations and late manifestations or sequelae.

Acute manifestations may occur as a result of prolonged roentgenographic or roentgenoscopic examinations, omission of filters, the treatment of areas twice, unusual susceptibility of the skin, or the application of irritating substances to the exposed surface of the body. It has been customary in the past to cling to more or less obsolete textbook descriptions of four degrees of reaction of the skin. These will be reviewed briefly, as follows:

1. The first degree of a mild temporary erythema, subsiding spontaneously and leaving no anatomic changes in the skin, has been regarded more or less as the danger line in diagnostic exposure, but one thinks little or nothing of it in modern higher voltage therapy.

2. The second degree is described as a more decided erythema, appearing in a shorter time, attended by subjective phenomena of itching or slight burning and followed by temporary or permanent epilation and dryness or scaliness of the skin, due to the atrophic effects upon the specialized structures of the integument. The acute reaction subsides promptly with care, but irritating applications may enhance it. This is the usual or average effect attained in modern higher voltage therapy.

3. The third degree is a severe dermatitis, with still earlier and more intense erythema, blistering, and loss of the epiderm but not the corium. Subjective symptoms are more severe. This reaction usually heals also with careful attention. It is frequently produced of necessity in higher voltage x-ray and highly filtered radium applications. It is also a necessary localized reaction in the treatment of superficial malignant growths. It may occur with smaller dosage in susceptible individuals.

4. The fourth degree of chronic ulceration is the one serious untoward effect that all radiologists fear. The erythema appears early; blistering ensues and is followed by sloughing, which becomes deeper and deeper, depending on the dosage. Most experienced radiologists have observed instances in which certain susceptibility factors seem to be concerned in even this type of reaction, although it is due to accident in most instances. The characteristic features of the lesion are its disinclination to heal, the tenacious slough, the indurated base and margins, and the pain, which is often out of all proportion to the severity of the lesion. Irritating applications will enhance the condition and may be the last straw in its production. Excision of the area is often required, especially with the deeper lesions.

It is my purpose in this presentation to discuss only preventive measures. It will be noted in the foregoing descriptions that the first three reactions are permissible in therapy and may be regarded as safe because it is necessary to go to the limit, and therapeutic dosage factors are fairly well standardized and reasonably accurate. The exposure factors in diagnostic work, on the other hand, are complex and not well established. The mildest erythema becomes the danger signal, but unfortunately it cannot always be foretold. One keeps within the limit of safety largely by experience and the observance of certain protective measures. In the first place, the useful beam in all diagnostic exposures should pass through a filter, permanently mounted. This should be at least 0.5 mm. in thickness of aluminum, and the Advisory Committee is likely to recommend 1 mm. The remainder of the tube should be completely enclosed in an opaque shield equivalent to from 1 to 2 mm. of lead.

One should keep an accurate record of all the exposure factors in every roentgenographic examination and attempt to keep within reasonably safe limits. It is a wise plan to determine the date and approximate amount of any previous exposure the patient may have had elsewhere before going ahead with any new examination. For the sake of safety, it is well to keep a record of all these facts.

Radioscopic exposure is the most uncertain of all the procedures from the standpoint of any accurate measurement. Repeated gastro-intestinal studies and fluoroscopic control in reduction of fractures and in the removal of foreign bodies from the soft tissues, air passages and esophagus all require a considerable amount of exposures, which is often carried to the limit of safety and all too often beyond. One should always use the minimum diaphragm aperture. The only timer available is one that is placed in the primary circuit, and it is very difficult to measure accurately the intermittent periods of exposure. Moreover, the intensity and voltage factors are likely to change considerably. It is to be hoped that some means of more accurate measurement of fluoroscopic exposure will be available in the future. It must now be largely a matter of experience and there are occasional instances in which one must take chances of overexposure in what are life saving procedures.

Therapeutic irradiation can be measured with reasonable accuracy. It will be recommended by the Advisory Committee that all tubes used for therapeutic exposures be completely enclosed by satisfactory protective material except at the point of emergence of the useful beam. It is at this point that the greatest care must be observed in the interposition of the proper filter. There should always be some way of avoiding the chance of leaving out the filter when its presence is intended. Various automatic warning devices have been described and used. Inspection by two individuals who sign the patient's record is another safeguard. Constant reading ionization devices may assist in calling attention to an omitted filter. Attention might also well be called at this time to the possibility of a hot tube target dropping off and falling on the patient. It may perforate a thin filter. Wood or thin asbestos may hold it until the patient can be removed from danger.

Time is an important dosage factor. Two clocks are advisable for timing therapeutic exposures, as one may stop. Even time switches are not infallible and should be checked by another clock. Current volume is another factor and must be determined by milliamperemeters. These may get out of order and not give correct readings, and it is advisable to have two on each therapy circuit so that one may be checked against the other. It is well to have x-ray volume and penetration checked at regular intervals by ionization estimations, as machines as well as meters may easily get out of order.

Following therapeutic applications, it is wise to warn patients against the application of any irritants to the skin of the areas treated. It is well to specify those most commonly used for various purposes, such as the many counterirritants, electric pads, hot water bags, ice caps, ultraviolet rays, sunburn, or antiseptics. The patient's physician may prescribe such applications without knowing that they are likely to do harm. Many

radiologists prescribe sedative powders or lotions to be applied to the skin in order to lessen reactions.

Late Manifestations or Sequelae: A chronic dermatitis with thickened atrophic skin and often showing hypertrophic tendencies, such as hyperkeratosis, was a common sequel of the older method of fractional dosage continuous irradiation. It also follows prolonged modern treatment, especially in palliative cases. Such skin sometimes becomes the seat of malignant degeneration just as may occur in old scars following burns. Telangiectases are frequently seen in such skin, but they may appear after much less exposure. Certain parts of the body, as the neck, are more common sites, and some individuals seem to have a certain predisposition. It is well to warn patients of this possible sequela and of its unavoidable occurrence.

Epilation is an unavoidable result of a full erythema dose. In the case of the scalp, the hair usually grows again, even after repeated removal, but one cannot always be sure that it will do so. Patients should be warned of this effect. Eye brows and lashes usually do not return, but they may be protected in some treatments over the head and face.

Sterility may be accidentally produced or may be unavoidable in either male or female. In the latter sex, it is purposely induced in the treatment of many pelvic conditions. Patients should be made to understand this expected effect and it is well to have a signed and witnessed statement that they do, for the reason that law suits have been instituted because of purposely induced sterility when the patient was not warned.

The Operator.—Any radiologist or technician is likely to be exposed to more or less radiation, depending on the amount of care taken and the efficiency of protective devices. So far as roentgenographic and therapeutic work is concerned, the complete enclosure of the tube affords a large amount of protection. All control panels should be in a separate room or in a lead lined booth in the examining room. A lead glass window should give full view of the entire room. Simple opaque screens are not safe. All possibility of individuals being subjected to exposure in adjacent rooms to the side of or above or below those in which tubes are activated should be avoided by adequate lead or lead equivalent protection in the walls, floors and ceilings. This applies to exposure both from the useful beam and from scattered radiation. Naked thermionic rectifying tubes are dangerous and should be properly enclosed.

The fluoroscopist is the individual most exposed to radiation, and a moderate amount of exposure of some portions of the body is almost unavoidable. Suitable gloves should be worn on palpating hands and complete covering by lead rubber gloves is the safest course to follow. The individual may wear a lead rubber apron to protect the body from scattered radiation, but this is heavy and very uncomfortable in summer. An alternate plan that affords protection to others as well as to the examiner is to have protective material so placed around horizontal or vertical roentgenoscopic apparatus that the minimum amount of exposure will be encountered over any part of the body. Such protection should be carefully checked at frequent intervals by a fluoroscope or the wearing of dental films on the person for two weeks at a time. The fluoroscopic screen should be covered by lead glass and enclosed in a wide opaque frame. The framed screen should be so attached that the tube will always move with it, and an adjustable diaphragm on the tube enclosure should never open so wide as to permit the useful beam field to fall beyond the screen itself.

The greatest amount of careless exposure is encountered in roentgenoscopic rooms. Most of it can be avoided. Any exposure may be dangerous; unnecessary exposure of the operator's person is foolhardy. Sterility or even aplastic anemia may follow too much of it over the body. Too many roentgenologists are imbued with the idea that the early pioneers who became martyrs had no lesions except on their faces and hands, but this is not true.

Three or four times a year, every radiologist and technician should carry on the person for two weeks at a time one or two dental films with opaque markers over them. If these films show a very appreciable fogging on development, a search should be made for the leaking radiation. It is well to apply such tests around roentgenoscopic and control rooms also. All radiologists and technicians exposed to radiation should have at least four weeks' vacation every year, and preferably in a continuous period. Full blood counts should be made at least twice a year and a record kept of each individual's counts, in order to detect any serious effect on the blood forming structures.

ELECTRICAL SHOCKS

In the early days of roentgenologic work, one rather expected to receive an occasional high tension electrical shock, which then was uncomfortable but not especially dangerous. In these days of high powered equipment without resistance control, the accidental grounding and, more particularly, the closing of the high tension circuit through the body is not only dangerous but has proved fatal in many instances to both patients and operators. There should always be some one present who thoroughly understands the application of appropriate resuscitation methods in order to give immediate attention to any individual who may have received a dangerous shock.

The important factors in protection against shocks may be enumerated briefly:

Quick acting circuit breakers should be permanently installed on all apparatus and adjusted to throw off at a moderate percentage overload over the maximum demands for the work of the equipment.

Suitable switches should be installed between power lines and each machine. These should be opened before one leaves the department or when repairs are to be made.

Two definite and distinct acts should be necessary before the high tension circuit is operating in connection with all equipment with exposed high tension parts.

The primary hand switch should not lock but should be so devised that it must be *held* closed and opens immediately when the hand is removed. A foot switch taking the place of a hand switch should be closed only when the foot is pressed on the button. One should not be able to step on the button accidentally.

When there is no audible indication that a machine is in operation there should be some automatic signal, such as a pilot light, to give adequate warning.

All panel board switches should be open when the exposures is completed and before any one can come in contact with the high tension line.

All high tension transformers should be in a separate room from that in which examinations are made or treatments are given, or surrounded by suitable barriers if necessity requires them to be in the same room.

High tension leads should be made of rigid metal rods or tubing and placed at least 7½ feet above the floor. Temporary leads to tubes on spring reels should be made of stranded wire, and the connections to the tube should be such that they will not accidentally become disconnected. They should not be allowed to come nearer to a grounded tube stand than a little more than the sparking distance for the voltage used and they should be at least twice that distance from the patient.

When high tension leads run under a fluoroscopic table, proper shields should be provided to prevent the foot of any one coming in contact with them. Insulating masts to such tables should be protected by barriers or surrounded by grounded metal guards. Wires operating on reels and extending from overhead high tension leads to the tubes of vertical roentgenoscopes should be protected by suitable barriers, so that no one may come in contact with them in the darkened room.

Insulated wooden tables are always safer, but most tables are now made of metal and are more or less grounded, depending on the insulating properties of the floor. When the floor insulation is not adequate, an added precaution would be to place the additional insulation needed under each leg of the table.

High tension overhead switches that operate to separate rooms should show an automatic signal in each room controlled.

All water cooling apparatus for therapy should be properly protected against danger from leakage or breakage.

Thermionic rectifying apparatus with condensers in the high tension circuit should have an automatic device for discharging both sides when the machine is shut off.

All oil immersed tube and transformer units should be properly grounded. This applies particularly to dental units.

It is a safe plan to seek the advice of an expert electrician who thoroughly understands high tension apparatus to see that all parts of the equipment that should be grounded are properly equipped with grounds to protect against high tension and even low voltage shocks.

DANGERS FROM ANESTHETICS

Explosive anesthetics should never be employed in rooms in which open high tension apparatus is used. Only units with tube and transformer contained in oil immersed tanks are safe. Even then the arcing of foot and hand switches and static discharges introduce an element of danger.

ROENTGEN SICKNESS

Roentgen sickness is a condition which is not thoroughly understood. Various theories have been advanced in explanation of it but none of them tell the entire story. Atmospheric conditions play an important part but even radium applications may produce similar or the same symptoms. The direct effect on the blood seems to have some influence. The annoying symptoms may be minimized by dividing therapeutic applications over a period of several days. Adequate ventilation is essential as a preventive measure. Dampness should be avoided and radiologic departments should not be located in basements. Rooms should be well ventilated. Suction exhaust ventilation is necessary for transformer and treatment rooms, and fresh air is essential in control rooms.

RADIUM PROTECTION

Proper treatment by radium is largely a matter of the application of physical principles, experience in adequate dosage with the use of proper filtration, and the protection of surrounding parts. Any regulations in regard to radium applications really resolve themselves into instructions in the therapeutic uses of this agent. While no definite advisory regulations have been formulated in this country as yet, it is necessary to understand fully the dangers incurred by those who handle radium element or its emanation.

In the handling of either for the loading of containers, packs or radon implant applicators, or in the measurement and sorting of radon tubes, distance is the best protection for the hands and a thick lead shield for the body. Distance protection is obtained by the use of forceps, and the longer they are the more protection afforded. Those who work with emanation plants must use every possible precaution. One should not touch a radium tube directly. As protection against radium exposure cannot be absolute, the safest plan is to have a rotating service for those who handle or work with it to any great extent. The highly penetrating gamma rays are the most dangerous feature, and the blood picture is the danger signal. Complete blood counts should be made at regular intervals. The hands and fingers must be watched for damage to the skin and nails.

University Hospital.

PROTECTION OF PATIENTS AND OPERATORS FROM X-RAYS

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The protection of operators and patients from stray x-rays when making roentgenograms or fluoroscopic examinations or in treatment is of immense importance, for the lack of knowledge of the dangerous effects of continuous exposure to x-rays, even of long wavelength, has resulted in a great many deaths of radiographers and workers in factories manufacturing x-ray tubes, from cancer of the skin. This danger is now obviated by the remote control possible with modern tubes. Sterilization and anemia are still, however, possible. In addition to the danger of either direct or scattered radiation, the air of the rooms in which high voltage currents flow may become contaminated with ozone and nitric oxide fumes, the inhalation of which are deleterious to the health of the personnel and may make sensitive patients ill. It is therefore necessary that all x-ray control and treatment rooms should be so located as to provide ample ventilation and light. This implies that such rooms be on or above the ground floor. Forced ventilation should be provided to change the air rapidly and remove deleterious gases. Rooms containing high-tension generators and other places where high-tension conductors are present should be provided with suction ventilation to remove nitrous and other gases.

All x-ray rooms or booths for operators should be lined throughout with sheet lead or equivalent material, care being taken that there should be complete overlapping of all joints. The requisite thickness of lead or its equivalent depends on the voltage employed.

For purposes of description, it is convenient to make two groups: (1) installations for diagnostic purposes in

which the voltage rarely exceeds 130 kilovolts and (2) such installations in which this voltage is exceeded.

In the first class, the lead should be 2 mm. in thickness; in the second, the lead should be 4 mm. in thickness. Any other protective material, such as lead glass or barium bricks, plaster or concrete, must be equivalent to either 2 mm. or 4 mm. of lead. If tubes are run at a higher voltage than 200,000 kilovolts the lead thickness required rises rapidly and for 300,000 must be 9 mm. Unquestionably, in a short time such voltages will be approximated and it is well to take care of this situation in the construction of new plants.

Radium, with an equivalent voltage of from one to two million kilovolts requires extremely heavy screening. Large quantities should be protected by at least 30 mm. of lead.

The screening of the tube depends on the voltage. For fluoroscopy and radiography, in which the voltage may not exceed 100 kilovolts, 1.5 mm. of lead or its equivalent in lead glass is sufficient. For tubes running at 200 or 225 kilovolts the screening should be at least 5 mm. of lead or its equivalent. A protective enclosure should surround the x-ray tubes even with low voltages to within one-half inch of the extremity of the tube so that direct and stem radiation is shielded off in all directions. If possible, complete enclosure is recommended, with the exception of the window through which the rays pass. It is wise to have an aluminum filter of at least 1 mm. thickness permanently mounted in the protective shield for all fluoroscopic and radiographic tubes. The same protection is wise in dermatologic or other low voltage therapy. The diaphragm of the tube container should also have a permanent cover of asbestos board at least 1 mm. thick, placed on the filter between it and the tube. This is to prevent damage to the patient in case the hot tungsten anticathode should become detached from the tube and fall against the filter, which it might melt. Asbestos will prevent this.

These protective measures are not necessary with certain foreign tubes of the Metalix type in which the tube itself is thoroughly screened, but it must be remembered that the patient exposed to radiation from such a tube, the couch on which the patient lies, and the floor of the room in which such a patient is being treated give off a considerable amount of radiation if the voltage exceeds 150 kilovolts.

The protection of the physician and personnel in fluoroscopy rooms is very important. The fluorescent screen must be covered with lead glass of a lead equivalent of 1.5 mm. Protective gloves and aprons should have an equivalent lead thickness of at least 0.5 mm. The tube protective enclosure should be provided with an adjustable diaphragm which, when open to its fullest extent, will leave a margin of one-fourth inch of unilluminated screen when that screen is at its greatest distance from the tube. The diaphragm and screen should always be mounted on a common support so that the two will move together. The frame of the fluorescent screen itself should contain protective material of 1.5 mm. lead equivalent overlapping the protective lead glass one-fourth inch and extending at least 6 inches beyond the edges of the glass. To protect the examiner from secondary radiation, shields of at least 1.5 mm. lead equivalent and sufficiently large to protect the physician's legs and body should be provided.

The walls of the radiographic and radioscopic rooms should be lined throughout with at least 2 mm. of sheet lead or equivalent material with the exception only of outside walls. Control apparatus should be in an adjacent room with 2 mm. equivalent lead protection. The same should be true of the lead glass window through which the operator looks. Thermionic rectifiers should be either placed in a separate room or surrounded by material of 0.1 mm. lead equivalent. Installations for voltages exceeding 140 kilovolt peak require heavier protection. The tubes should be completely enclosed in a protective arrangement so that all direct radiation is shielded by lead equivalent of 3 mm. for the lower voltages and 4 mm. for the higher. The exposure diaphragm of the tube containers should have a permanent cover of asbestos board placed just about the filter. When water-cooled tubes are used, the diaphragm must be sealed water-tight.

When a therapy tube is so arranged that the radiation can escape in only one direction, a sheet of lead 4 mm. thick should be placed in the path of the beam on the floor, wall or ceiling, depending on the direction in which the beam escapes. This lead sheet should be several feet wider than the maximum area of the beam at the level where the lead is placed.

When the x-ray tube is movable, the room in which it is used must be lined with lead. Its thickness may be 1 mm. less than the values for direct shielding of the tube. Control apparatus must be in a separate room with a protection of not less than 3 mm. Thermionic rectifiers used for high voltages should have 0.2 mm. of lead or other equivalent protection.

The protection of the patient from contact with the high voltage leads to the tube should be accomplished, if possible, by enclosing the tubes and such leads with rubber. If this is not possible, great care should be taken to warn the patient not to touch the terminals. The primary circuit of the transformer should have an automatic solenoid switch so delicate as to be released with a very slight overamperage. An automatic time switch should be used with all x-ray apparatus. All high tension generators should be installed, if possible, in a separate room. It will add to the safety of the personnel if the door of this room is so arranged that the transformer will be shut off when the door is open. Any system of safety lights is poor protection. Such lights may burn out and lead the personnel to believe that the current is off.

In therapy it is important that only that portion of the patient which is to be treated is exposed to radiation. The remainder of the body should be protected from scattered rays by being covered with lead of 0.5 mm. thickness or an equivalent amount of lead rubber. It is convenient to have standard portals cut in the lead rubber or in the sheet lead. The latter are conveniently covered by sewing them in cloth casings. This prevents sparks from static charges that may be excited in the metal from the high tension leads. Standard portals should be made of 20 by 20, 10 by 10, 5 by 5, and 5 by 10 cm. openings with an assorted group of smaller portals from 0.5 to 5 cm. for the treatment of localized lesions. Such protection is usually not sufficient for voltages approximately 200,000. When such short wave x-rays are used, the tube should either be enclosed in a lead lined drum with a cooling fan or should be immersed in a lead lined oil tank. The top of the tank should be closed by glass of a lead equivalent of 4 mm. Lead diaphragms may be inserted in such drums or tanks at the level of the filters, but the isodose curves inside the body will have a slightly different shape from those obtained when the portal is placed on the patient's

skin. In the latter instance less radiation will be found outside the prism of tissue irradiated than where the diaphragm is some distance from the patient. This is due to stem radiation from the tube or scattered radiation from oil in the tank.

With apparatus using condensers in the high-tension circuit, the precaution of a switch to include a grounding circuit in the high-tension system should be installed to prevent shocks from the residual charge in the condensers.

Permanent overhead high-tension systems should be constructed of metal rods or tubes of sufficient diameter to provide rigidity and prevent corona. Sharp edges or points in the high-tension system should be avoided. Such conductors should not be less than 7½ feet above the floor. The insulating supports from such high-tension aerials, stabilizers, meters and the like must be tested to sustain a load of 50 pounds.

Metal parts of x-ray apparatus should be permanently grounded to a water pipe.

The table on which the patient is roentgenographed or treated should be insulated. For higher voltages the table should be preferably made of wood. The floor should have a rubber or linoleum cover and should not be of bare concrete.

It is extremely important that all those who clean rooms used for x-ray exposures should be warned not to touch any switches or other parts of the apparatus, and when the rooms are opened in the morning such switches should be inspected to see that they have not been closed accidentally.

The efficiency of the protective devices should be examined on installation and frequently thereafter. If fluorescence can be noted with a fluoroscope fitted closely about the eyes, a dangerous amount of radiation is present.

It is well to check the amount of scattered radiation by carrying a dental x-ray film half covered with lead foil for about two weeks. If marked darkening of the exposed part of the film is indicated on development, the opportunities for exposure should be investigated and corrected.

All persons engaged in radiologic work should have a thorough medical examination at least once a year. Complete blood counts should be made every other month. Any marked diminution in leukocytes or hemoglobin is an indication for a prolonged holiday until the condition is remedied.

Every assistant, technician and operator who is exposed to scattered x-rays or radium should be given four weeks' vacation a year, with at least two weeks given consecutively during the summer so that fresh air and outdoor exercise may be obtained.

A copy of directions for the Schaefer method of artificial respiration should be posted in the radiology department. Any one receiving an electrical shock may die from paralysis of the respiratory center. Artificial respiration in such an emergency should be continued if necessary for two hours.

1145 Amsterdam Avenue.

Chronic Bacterial Infection.—The constant presence of a chronic bacterial infection, for instance, may modify the secretions and chemistry of the body in such a way as considerably to influence the nervous system, causing a formerly kind and agreeable person to become nervously distorted and unbearable. Physical changes, such as modifications in the bony frame and alteration of personality, may be similarly brought about by infection.—Stockard, Charles R.: The Physical Basis of Personality, New York: W. W. Norton & Co., Inc., 1931.

CHEMICAL RECTAL STRICTURE*

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DALLAS, TEXAS

The injection of solutions of phenol in oil into hemorrhoidal plexuses or under the rectal mucosa has become in recent years a procedure whose execution is limited only to those able to secure an anoscope and syringe of appropriate size.

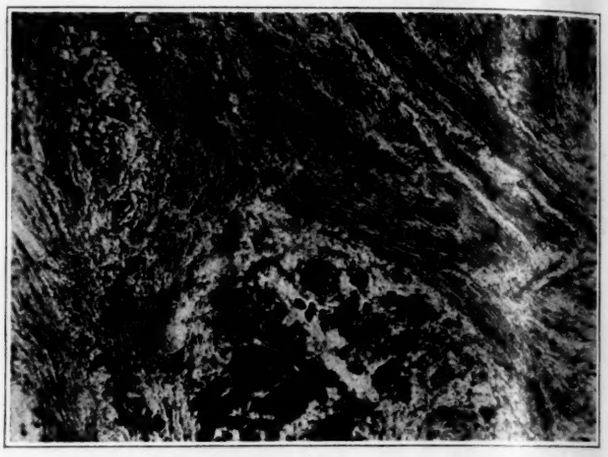

Fig. 1.—Section from benign inflammatory stricture, stained for fat, showing dense bands of partially hyalinized fibrosis with some fat cells grouped around blood vessels.

I have seen twenty-four persons in the past five years whose rectal complaint dated from this procedure. Nodule formation in the submucosa of the lower rectum was a common result in this group.

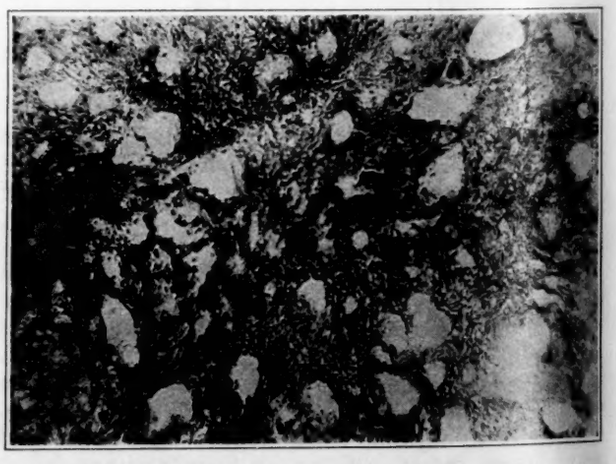

Fig. 2.—Section from chemical stricture of eight months' standing: loose wavy fibrous tissue stroma and vacuoles of irregular shape.

This submucosal tumefaction has been so common an observation in the proctoscopy of previously injected patients in this section as to suggest that some degree of palpable induration is a usual sequence, although ordinarily silent symptomatically. The permanence of the lesion when once formed is attested by discovery of similar nodules when the injections were made eighteen or twenty years before.

Of the twenty-four patients mentioned, twelve gave a variety of symptoms, including severe rectal neuralgia,

* From the Section of Proctology, Baylor University College of Medicine.

chronic anal ulceration, gangrene, abscess, fistula formation and prolapse of injection nodules.

In the remaining twelve, rectal occlusion sufficiently complete to demand operative intervention had occurred from the coalescence of several indurated infiltrating masses. This group comprises 12 per cent of the benign rectal strictures coming under my observation, and stenosis of this character has been found remarkably resistant to proctotomy, carbon dioxide snow, and graduated diathermy-dilation, a combination of the first and last named devices providing palliation only.

A medical literature which does not mention the existence of rectal stricture from chemical injection will per se offer no explanation of the mechanism involved. I have been interested in speculating on the tumefacient present in solutions used and its possible elimination.

The individual masses are covered with intact mucosa and are of yellowish hue on cut section. They involve the submucosa diffusely, being firmly attached to mucosa and muscularis. A yellowish serum may be expressed from the tissue.

The microscopic picture does not resemble even remotely the observations in inflammatory stricture, with its dense bands of hyalinized fibrosis (fig. 1). Instead, a bizarre structure is seen (fig. 2) consisting of a framework of fibrous connective tissue surrounding numerous large and small spaces. Lymphocytes, fibroblasts and giant cells are found in this connective tissue framework. The only variation in this structure that has been noted is the tendency to more definite organization of the fibrous tissue stroma with consequent clearer definition of the spaces in cases of less recent standing (fig. 3). By using fat stains on the tissue removed, the mechanism of the tumefaction has been revealed. The apparent vacuoles contain oil that has been walled off by the phenol-stimulated fibrosis, and if the carrier was a vegetable oil (as wesson oil or olive oil) the oval spaces take a brilliant sudan III stain (fig. 4). When liquid petrolatum has been used, the vacuole content remains partly stained as was expected from observing the actions of these oils when added to sudan III on a slide.

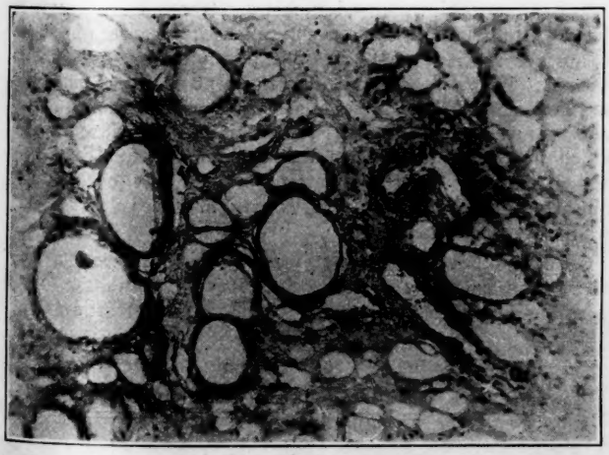

Fig. 3.—Section from chemical stricture of eight years' standing: well organized fibrous stroma and clearly defined open spaces.

Attempts over a period of a year to reproduce the lesion in dogs were disappointing. A variety of solutions made with different oils and varying strengths of phenol were injected under the taut mucosa of twelve dogs with no other results than absorption, formation of abscesses or mild microscopic fibrosis.

CONCLUSION

Partial occlusion and rigidity of the lower part of the rectum is present in many individuals who have received phenol-oil rectal injections. Definite stricture

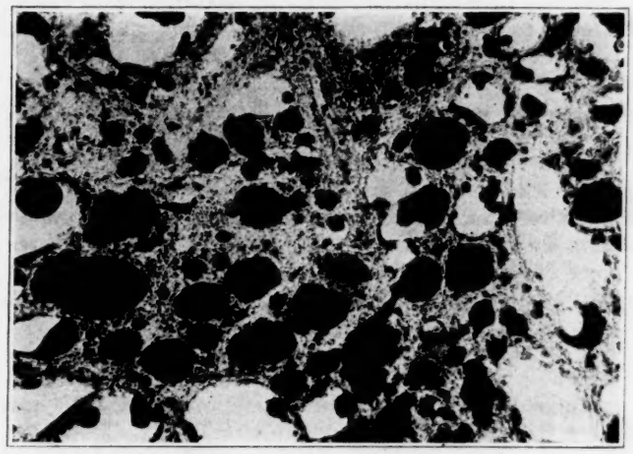

Fig. 4.—Section from stricture resulting from injection of phenol in a vegetable oil four months previously; sudan III stain. The apparent vacuoles contain oil.

is not uncommon. The elimination of oil as a carrier or the substitution of some other nonfatty chemical is suggested to avoid this complication of the nonsurgical treatment of hemorrhoids.*

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ELIMINATION OF RADIUM SALTS FROM THE HUMAN BODY

PRELIMINARY REPORT

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NEW YORK

The statement has been made by writers on "radium poisoning" among dial painters that no elimination of the radium salts takes place once they have been deposited in the body. This is contrary to the observations of Dominici, Faure-Beaulieu, and their co-workers,[1] and to those of Cameron and Viol,[2] who have shown that soluble and insoluble salts of radium were eliminated whether they had been ingested orally or injected intravenously. A study of the dial painters indicates that somewhere between 10 and 20 per cent of those who were in the habit of pointing the brush between the lips remained radioactive after they had been separated from the industry for several years. Persons who have received repeated internal doses of radium salts have also been found to be radioactive

* With the collaboration of Stuart A. Wallace, Associate Professor of Clinical Pathology at Baylor University College of Medicine, detailed experimental observations are being made on the exact nature of the phenomena in question for later report. The designation elaioncos (Greek-elaion, oil; oncos, tumor) is suggested as a generic term for tumors resulting from oil retention in the body tissues.

1. Dominici, H., and Faure-Beaulieu, M.: De l'arrêt et du séjour prolongé du radium dans les tissus vivants, Compt. rend. Acad. d. sc. **146:** 1051, 1908; Dominici, H., and Faure-Beaulieu, M.: Arrêt et séjour prolongé du sulfate de radium dans les tissus vivants, pendant une durée excédant une anée, Compt. rend. Soc. de biol. **68:** 46-48, 1910. Dominici, H.; Laborde, A. (Mme.), and Laborde, A.: De la fixation, par le squelette, du radium injecté a l'état soluble, ibid. **75:** 108-110, 1913. Dominici, H.; Pettit, G., and Jaboin, A.: Sur la radioactivité persistante de l'organism résultant de l'injection intraveineuse d'un sel radium insoluble et sur ses applications, Compt. rend. Acad. d. sc. **150:** 726-728, 1910.

2. Cameron, W. H., and Viol, C. H.: Classification and Relative Value of the Various Methods Employed for Internal Administration of Radium Emanations and Radium Salts, Radium **2:** 136, 1923.

several years after cessation of treatment. These observations show that there are some people who, because of personal physical conditions or improper diet, have a tendency to store radium in their bones. An analysis of the excreta of these persons indicates a low rate of elimination, from three to ten years being required to eliminate 1 microgram of radium. This is in contrast to the observation of Cameron and Viol [2] that there is a rapid elimination the first three or four days and then a decrease, until at the end of ten days the rate drops to 1 per cent daily.

Because of its relationship to the alkaline earth salts and to lead it is reasonable to suppose that any treatment that would affect calcium might have a similar action on the radium deposits. In 1926 I had an opportunity of putting this theory to a test. The patient was given ammonium chloride and injections of parathyroid extract for several days. Specimens of stools and urine were collected and analyzed for me by Mr. H. H. Barker of the United States Radium Corporation. The results show an average daily excretion in the stools of 16,000 micromicrograms of radium and 2,200 in the urine, or about 1 microgram every sixty days. Circumstances prevented further observations being made on this patient.

In 1929 I was able to hospitalize two patients with "radium poisoning" who were not suffering from the jaw condition so common in the earlier cases, and, with the cooperation of Dr. Seidlin, to observe the effect of parathyroid extract on elimination following closely the procedure suggested by Dr. Aub,[3] for lead cases. An increased rate of elimination was noted. However, the method has many disadvantages because of the differences in behavior between lead and radium when once they are deposited in the bones. Lead is inert, while the destructive action of radium rays continues. For this reason it is necessary to remove the radium salts completely from the body, and this elimination is not as rapid as is the case with lead and cannot be pushed, because one is dealing with an already damaged condition of the bone. It is a matter of months and not of days.

While studying the progress of a delayed healing of a spontaneous fracture of the femur in a radium case with Dr. Raymond Ryder, I suggested the administration of viosterol. The fracture occurred the first day of September, 1929, and until December showed no definite sign of callus deposit. It was then that the administration of viosterol was begun. Dr. Crane took and interpreted the roentgenogram for us. The reports during the next six months were as follows:

Jan. 3, 1930: Distinct increase in the amount of callus, but, on the other hand more angulation of the fragments.

January 30: Shows very definite and positive ossification in the newly formed callus.

March 4: Shows large increase over last exposure.

May 5: Shows a very bony callus on both planes.

June 3: Without braces shows firm union in both directions.

Another case of spontaneous fracture in which this treatment has not been given has just been referred to me. There has been no definite callus deposit, although the fracture of the femur occurred over two years ago.

REPORT OF CASES

CASE 1.—The history of the first patient showed a general feeling of lassitude and complaints of pains in the back and leg. Roentgenograms did not reveal any pathologic bone conditions in the femur. Irregular areas of destruction were seen in the calvarium as well as slight changes in the jaw.

There was an increase in body weight and a general feeling of well being. It was decided to administer viosterol as a routine measure in all the radium cases that came under my supervision in hope that callus would be deposited in the bones that had undergone some destruction from the action of the radium deposited in them. This treatment has resulted in increases of body weight and a better general physical condition. The marked increase in body weight is illustrated by a patient who received this treatment three weeks before her death from an abscess of the brain caused by radium. She gained 8 pounds (3.6 Kg.) in two weeks, which, of course, is very exceptional. What surprised me more than anything else in these cases was a decrease in the amount of radium in the body after this treatment had been carried out for some time.

TABLE 1.—*Blood Count and Loss of Radium in Case 1, During Five Years' Observation*

Blood	Hemoglobin (Per Cent)	Red Blood Cells (Millions)	White Blood Cells	Micrograms of Radium Present in Body
1925.....	79	4.37	7,000	....
1926.....	81	6.03	4,800	23.7
1927.....	68	4.26	7,550	....
1928.....	68	4.33	5,800	10.0
1929.....	78	3.27	5,100	10.0
1930.....	78	3.80	6,200	2.50

CASE 2.—A married woman, aged 19, was confined to bed two and a half years ago. There was a necrosis of the lower jaw which has resulted in its entire destruction. Her weight is 69 pounds (31 Kg.).

TABLE 2.—*Blood Count and Loss of Radium in Case 2 During Three Years' Observation*

Blood	Hemoglobin (Per Cent)	Red Blood Cells (Millions)	White Blood Cells	Micrograms of Radium Present in Body
1928.....	60	2.34	8,600	90
1929.....	30	2.10	4,000	90
1930.....	50	3.00	4,200	47

A roentgenogram showed numerous "moth eaten" areas in the calvarium, besides the jaw condition. These areas increased in number as time went on. She began to take viosterol in January, 1930. A marked improvement is apparent. Her weight is now 90 pounds (41 Kg.) and she has resumed housekeeping again. The openings in the sides of the face through which the sequestrated bone was thrown off have completely healed. The extremely disagreeable odor has entirely disappeared. The "moth eaten" areas in the calvarium are gradually decreasing.

CASE 3.—This patient was just beginning to show a bone destruction in the jaw. A roentgenogram shows the "moth eaten" lesions in the skull. The patient received treatment with parathyroid extract for several months. This did not improve the jaw conditions, which showed a tendency to increase in severity. Since she has been taking viosterol, destruction has ceased and a general improvement is noted.

TABLE 3.—*Blood Count and Loss of Radium in Case 3 During Two Years' Observation*

Blood	Hemoglobin (Per Cent)	Red Blood Cells (Millions)	White Blood Cells	Micrograms of Radium Present in Body
1929.....	70	4.10	6,400	19.4
1930.....	80	4.00	6,300	5.1

3. Hunter, Donald; and Aub, J. C.: Lead Studies, Quart. J. Med. **20**: 123-140 (Jan.) 1927.

CASE 4.—A married woman complained of a general feeling of lassitude and pains in the back and legs. A roentgenogram showed bone destruction in the spine, jaw and skull. Since she has been given viosterol the pains have diminished, she is feeling much better and no increase in bone destruction has been noted.

TABLE 4.—*Blood Count and Loss of Radium in Case 4 Over a Period of Four Years*

Blood	Hemoglobin (Per Cent)	Red Blood Cells (Millions)	White Blood Cells	Micrograms of Radium Present in Body
1926.....	80	5.68	7,600	10.6
1929.....	..	....	.....	10.5
1930.....	65	3.40	5,600	5.1

CASE 5.—The patient was underweight and complained of pains in the back and legs. The bowels were constipated. Since treatment began the tendency toward constipation has been corrected. After the administration of viosterol for some time, the pains disappeared.

TABLE 5.—*Blood Count and Loss of Radium in Case 5 During Six Years' Observation*

Blood	Hemoglobin (Per Cent)	Red Blood Cells (Millions)	White Blood Cells	Micrograms of Radium Present in Body
1925.....	32	4.88	9,300	....
1926.....	72	4.87	13,300	27.2
1927.....	73	3.54	13,150	....
1928.....	65	3.57	6,400	25.2
1929.....	..	....	.....	20.9
1930.....	64	3.00	5,300	17.5

CASE 6.—The patient had congenital talipes. The absence of radioactivity in this body has been checked by a government physicist. A roentgenogram in 1930 showed no bone destruction.

TABLE 6.—*Blood Count and Loss of Radium in Case 6 During a Period of Five Years*

Blood	Hemoglobin (Per Cent)	Red Blood Cells (Millions)	White Blood Cells	Micrograms of Radium Present in Body
1925.....	83	4.93	7,700	....
1927.....	..	....	.....	10.5
1928.....	69	3.68	6,000	6.0
1929.....	60	3.28	4,700	4.0
1930.....	92	4.40	6,800	None

CASE 7.—The patient felt all right but looked anemic. The body weight was normal.

TABLE 7.—*Blood Count and Loss of Radium in Case 7 During Three Years' Observation*

Blood	Hemoglobin (Per Cent)	Red Blood Cells (Millions)	White Blood Cells	Micrograms of Radium Present in Body
1927.....	50	4.95	7,650	10
1928.....	45	3.99	10,000	..
1930.....	74	4.60	6,500	Trace *

* The absence of radioactivity in the body has been confirmed by a government physicist. Less than 1 microgram.

CASE 8.—This patient came under my supervision in September, 1930. Very definite bone changes were present. The radioactivity was about 14 or 15 micrograms. Treatment with viosterol was begun in October. As no electroscopic tests have been made since, it is not possible to discuss the elimination in her case. However, I am in receipt of a letter from the physician who is handling her case for me, dated the early part of January, 1931. He writes that the patient is slowly improving as far as her general health is concerned. She has put on weight and has gained color and feels better. There has been considerable improvement in the amount of pain since the beginning of treatment, but not so much the last month. There seems to be slightly more motion in the left hip than a month ago, although it is very slight. In December another series of roentgenograms were taken of pelvis, hips and skull. They show no difference between those taken in September, 1930.

TABLE 8.—*Effect of Viosterol on Expired Air in Three Patients*

Subject	Expired Air Before Treatment	Expired Air After Treatment
1	0.00195 division per second	0.03953 division per second
2	0.00112 division per second	0.06091 division per second
3	0.00128 division per second	0.05491 division per second

After we had noted the increase in the rate of elimination of radium when the patient had been taking viosterol for some time it was suggested that we increase the dosage to 20 drops or even a teaspoonful three times a day until the patients began to lose their appetites. Some of the patients were given 20 drops three times a day. Circumstances prevented the collection of excreta, and for this reason one has to depend on electroscopic tests on the patient both by gamma ray method and radioactivity of the expired air, according to the method described by Schlundt, Barker and Flinn [4] to determine the progress being made.

The expired air of the first patient I examined after she had been given a large dose of viosterol showed such a great radioactivity that it was impossible to make a reliable reading of the electroscope. Part of this perchance might be explained by the fact that the natural leak of the instrument is taken outside the laboratory. However, when the expired air was removed from the cylinder the leak returned to approximately what it was before the test was made. Unfortunately, this was a new patient and she had received the treatment several weeks before I made my first examination, so that a comparison cannot be made with the activity of the expired air before treatment.

Three other girls were examined after being given 20 drops three times daily for about a month. The expired air showed the expected increase, or an average increase in activity in the expired air amounting to 35.5 times what it was before the treatment began.

Our experience so far suggests a method of treatment that will eliminate radium salts from the organism as well as improve the condition of the bone if continued for sufficient time. It is a matter of months and not days. Care should be taken that fresh preparations are used. Too much importance should not be given single determinations of radioactivity in the body, nor too much emphasis placed on small decreases. It is the trend of repeated tests that is important rather than a single observation. We do not call any patient negative who has not been found to be negative in more than one examination. We hope sometime in the near future to report a complete elimination in all of our cases and to present at the same time roentgenograms showing an improved condition of the bone.

632 West One Hundred and Sixty-Eighth Street.

4. Schlundt, Herman; Barker, H. H., and Flinn, F. B.: Detection and Estimation of Radium and Mesothorium in Living Persons, Am. J. Roentgenol. **21**: 345-354 (April) 1929.

Clinical Notes, Suggestions, and New Instruments

FRACTURES OF THE CLAVICLE TREATED BY SUSPENSION AND TRACTION, FOLLOWED BY STRAPPING

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Since fractures of the clavicle do not cause much pain or disability, many surgeons pay little attention to their treatment so far as anatomic apposition of the fragments is concerned. While the patient usually obtains fair range of motion in spite of great deformities, one often hears of malpractice suits for some poor end-result following clavicular fracture.

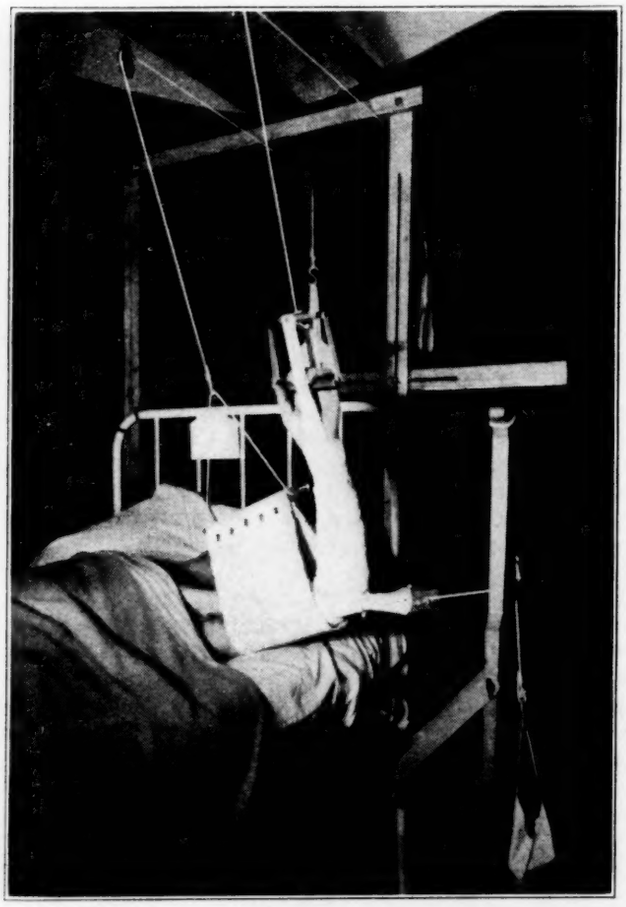

Fig. 1.—Traction and suspension applied to humerus, showing the moleskin adhesive plaster and arm board in place.

In former days, young women who suffered from these fractures were placed on their backs with a narrow pillow between the shoulders. This method of treatment has a fairly good rationale, but in displacements due to rotation, correction is not possible. Again, remaining on one's back for two weeks without an occasional turn during sleep or without personal care is a physical impossibility.

By means of suspension and traction, deformities may be reduced and the fragments held in place until callus has formed and there is no fear of recurrence. I have found that the actual time of disability is decreased and that motion returns almost as soon as the traction has been removed.

Some surgeons will say that it is not feasible to keep a patient in bed for a week or ten days; but if the injured person is told that convalescence is shortened, that discomfort is nil and that there is an absence of final deformity, I feel sure that the suspension method will be chosen as the best means of treatment.

In fractures by direct violence in which there is trauma to the skin, it is found that the suspension method permits dressings without disturbing the immobilization.

The common clavicular fracture in the adult usually is seen in the middle third with the obliquity running toward either lateral third and is usually produced by indirect violence. The outer end of the sternal fragment is pulled upward by the sternomastoid, while the outer fragment is carried downward and inward under the mesial fragment and overlaps it as the result of loss of shoulder support from the clavicle.

TRACTION TECHNIC

The arm and forearm should be shaved, if necessary; four moleskin strips are then applied without wrinkles laterally on the arm and forearm. The arm should now be supported by a canvas sling well padded with orthopedic felt and suspended with weights, just enough to give it proper support, depending on its weight; from 3 to 5 pounds has been found ample. The forearm is now suspended from the moleskin strips to a hand grip, as illustrated, from 3 to 5 pounds being used. The wrist and hand are to be free for motion, as is the elbow, which is put up at a 90 degree flexion when at rest. The strips from the arm are now suspended to an arm board and traction of from 3 to 7 pounds attached according to the amount of pull required to obtain the proper correction of the accompanying deformity. The arm in this type is held at an angle of 90 degrees with some external rotation, but this is to be changed to the proper angulations required to hold the fragments in anatomic relation. Should there be a great deal of overriding not corrected by the additional traction, it is wise to anesthetize the patient with ethyl chloride or gas and correct the deformity manually. In cases in which there is marked overriding it is also good to apply a wide collar of felt to relieve the pull of the sternomastoid, which keeps the head to the affected side and relieves the muscular spasm and accompanying pull.

Observations in Sixty Cases

Cause		Type of Fracture	
Direct injury	31	Transverse	23
Indirect injury	29	Oblique	23
Sex		Comminuted	7
Males	41	Incomplete	7
Females	19	**Location**	
Age		Middle and outer third	25
Adults	38	Middle third	25
Children	22	Outer third	10
		Middle and inner third	1

Type of Treatment		Average Healing Time
Suspension	23	17.5
Velpeau	18	22.4
Sayre	11	23.0
Metal ring	1	29.0
Crucifix	2	25.0
Sandbags	2	21.0
Figure of 8	2	21.0
No treatments	1	....

In fractures of the outer third, if at the coracoclavicular ligament, the fracture is usually irregularly transverse and no displacement is noted. In these cases the arm alinement is kept at a 90 degree abduction with little traction.

If the fracture takes place mesial to the coracoclavicular attachment, the inner end of the outer fragment is displaced upward by the trapezius and the outer end of the inner fragment is held downward and inward by the deltoid and pectoralis major. In this treatment the line of traction is held at a 110 degree abduction with greater traction than in fractures of the extreme outer third.

When I see fractures of the inner third, which are usually produced by direct violence, the inner end of the outer fragment is displaced downward and forward. The line of traction is here held at a 45 degree abduction.

In acromioclavicular dislocations in which there has been laceration of the acromioclavicular ligaments and some stretching or tearing of the conoid and trapezoid ligaments with or without injury to the coracoclavicular attachment, treatment by suspension and traction should be attempted if the case is a fresh one. In the majority of cases in which there is moderate or slight displacement, a pad should be applied over the point of deformity and the arm and forearm suspended, the

angle of abduction being extreme in order to relax the ligamentous tension and to permit healing. It is surprising to see how many positive and complete cures are obtained after the suspension treatment of dislocations.

POSTSUSPENSION STRAPPING

Following the removal of the traction apparatus, the shoulder is strapped in the following manner:

Four or five strips of two inch adhesive plaster are utilized, according to the size of the patient; they are applied in such a way that the shoulder is supported, so as to keep the length of the clavicle intact. The first strip is attached over the acromion with the shoulder held back and the arm close to the body. The strap is then put on in tension and carried backward and over to the opposite side of the abdomen to the median line. The remaining strips are applied so that the previous ones are covered two thirds, their surface working downward to keep the arm at rest. If the callus is still soft

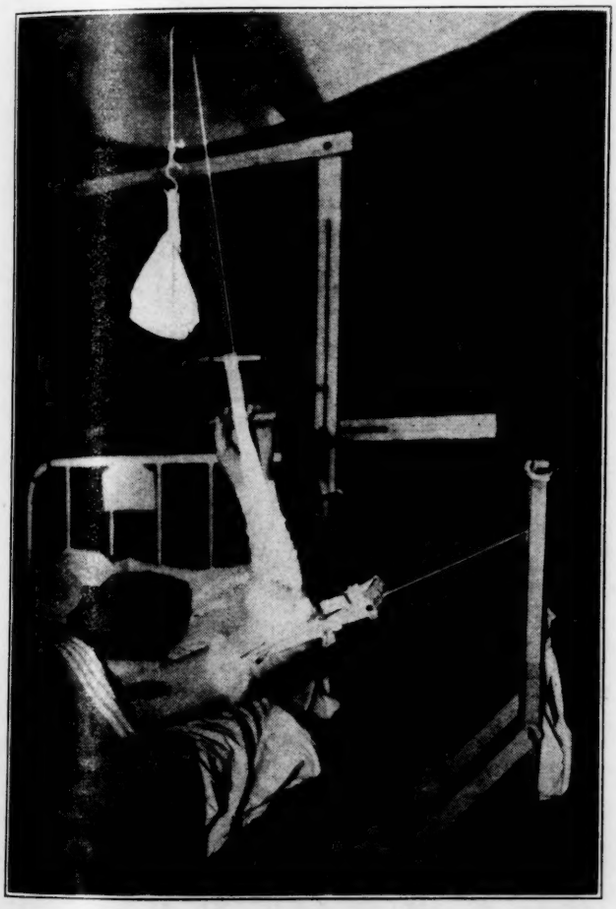

Fig. 2.—Traction and suspension applied to humerus, showing the Henniken band and arm board in place.

and the patient very active it is proper caution to have the forearm in a sling until it is felt that there is no fear of further injury. This dressing is kept in position for from three to seven days or until a roentgenogram reveals sufficient callus and clinical examination shows solid union.

The accompanying table contains the summary of observations in sixty cases of fracture of the clavicle. From these figures I feel that the treatment of choice which gives the most perfect healing in the shortest possible time is the suspension and traction method. The shortening of the clavicle with shoulder deformity and faulty posture is negligible after this treatment. I have also noted that practically no after-treatment is required, because of the early motion insisted on, the after strapping is utilized merely to remind the patient that he has had an injury to his shoulder girdle, so that he will use some care in his actions.

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SPONTANEOUS RUPTURE OF THE NORMAL SPLEEN

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H. S., a youth, aged 14, felt as well as usual on the morning of Jan. 20, 1931. On arising he ate a large breakfast. Shortly after breakfast he became nauseated and vomited immediately. His retching was quite hard. He had no pain prior to vomiting but experienced a slight pain in the epigastrium shortly thereafter. Within an hour the pain was rather general over his abdomen. No history of trauma could be elicited from the patient or his friends at the military school where he lived.

I saw him two hours after the onset and found him suffering with moderate pain and nausea. His pulse was 80; his temperature 98. Examination revealed nothing other than slight tenderness over the upper part of the abdomen.

When I saw him again six hours later, the pain had become more severe and partially localized in the right iliac fossa. His temperature was 100 and his pulse 100. At this time there was definitely more tenderness and slight rigidity at McBurney's point. The leukocyte count was 7,500 with 80 per cent neutrophils, of which 3 per cent were stabs and 77 per cent segmented forms. The patient did not look very sick. His color and expression were good. He was not restless and his skin was not moist. He was tall for his age, and his hands and feet were unusually large. His skin showed some ichthyosis.

Appendicitis was diagnosed and a McBurney incision made twelve hours after the onset. When the peritoneum was opened, a large quantity of fresh blood was found in the abdomen. The appendix was normal. This incision was closed and a high right rectus incision was made. The stomach was found dilated to such an extent that it had to be emptied by use of a stomach tube before exploration was possible. The stomach and liver were found intact. When the hand was passed across to the upper left quadrant of the abdomen, numerous large clots were encountered. A transverse incision was then made, joining the right rectus incision just above the umbilicus. A 2 inch rent was found at the upper end of a slightly enlarged spleen. This rent had occurred in one of the normal fissures of the spleen. Active bleeding was present. This was controlled by the use of four mattress sutures of catgut tied rather loosely. A Penrose drain was left leading down to the spleen.

The wound was closed in the usual manner after the bulk of the free blood had been removed by suction. About 1,000 cc. of blood was present.

The patient stood the operation quite well. His pulse was 120 when he left the table and his breathing was quiet and easy. A few hours after the operation his pulse and his respiratory rate began to go up, reaching 140 and 40, within six hours. A slight cyanosis, which was noticed as he left the table, increased rather considerably. Examination at this time showed his heart to be moderately dilated, and moist râles were heard throughout the lungs. The hemoglobin was 64, a Sahli instrument being used. These symptoms gradually grew worse, and in spite of a blood transfusion death occurred thirty hours after the operation.

There was practically no bleeding from the wound. The dressing was only slightly discolored in the neighborhood of the drain. There was no reason to believe that there was any further intra-abdominal hemorrhage, particularly since a blood count made twelve hours after the operation showed: hemoglobin, 67 per cent; erythrocytes, 3,480,000, and leukocytes, 9,000. There were 80 per cent of neutrophils, of which 1 per cent were myelocytes, 21 per cent were young forms, 33 per cent stabs and 25 per cent segmented forms.

Byford[1] has collected and summarized from the literature six cases and added one of his own. Bailey[2] reported one case and included in his summary two cases not mentioned by Byford, one from Holland and one from Italy. Harvey[3] in an earlier article reported a case which neither Byford nor Bailey included. Thus in the literature there are twelve cases of spontaneous rupture of the apparently normal spleen.

1022 Medical Arts Building.

1. Byford, W. H.: Spontaneous Rupture of the Normal Spleen, Arch. Surg. **20**: 232 (Feb.) 1930.
2. Bailey, H.: Brit. J. Surg. **17**: 417, 1930.
3. Harvey, T. W., Jr.: Spontaneous Rupture of the Spleen, J. A. M. A. **93**: 987 (Sept. 28) 1929.

Special Articles

DIPHTHERIA MORTALITY IN LARGE CITIES OF THE UNITED STATES IN 1930

EIGHTH ANNUAL REPORT [1]

This report concerns the ninety-three cities dealt with in the recent article on typhoid,[2] and the rates are calculated on the basis of the population figures used in that article. The number of diphtheria deaths in each city has been reported to us by the respective health department.[3] As in the article on typhoid, the diphtheria rates for 1925-1929 have been recalculated on the basis of the population figures of the 1930 United States Census; those recalculated rates which differ by 0.3 or more from the rates given in previous reports have been substituted in the present tables, as indicated in the footnotes.

TABLE 1.—*Death Rates of Cities in New England States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1930	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
New Haven	0.6	1.6	7.1	14.2	14.9	22.7	15.6	54.8	74.5
Cambridge	0.9	3.2*	8.9	12.9	23.8	25.3	46.7	71.9	58.0
Hartford	1.2	5.3*	11.9	13.8	25.3	28.1	38.8	47.8	120.9
Bridgeport	1.4	11.8*	19.6	23.4	23.3	26.8	34.2	63.9	79.3
Worcester	1.5	8.6	15.5	14.1	21.3	32.2	16.5	50.3	47.8
Boston	2.9	8.3	20.2	26.3	20.0	26.2	53.7	83.9	112.2
Waterbury	3.0†	2.6	17.9	23.0	29.6	....	....	....	....
Fall River	3.5	12.0*	25.5	23.6	24.0	34.4	50.1	43.8	46.9
Lowell	4.0	10.6*	16.7	23.5	20.6	31.0	59.3	44.3	36.4
Springfield	5.3	10.3	15.4	24.9	19.1	31.3	29.6	51.3	68.2
Providence	7.9‡	9.5*	15.8	29.3	26.8	30.7	41.2	53.5	55.3
New Bedford	8.0	10.9*	16.5	17.0	20.9	22.6	25.1	53.6	20.0
Lynn	10.7	13.5*	17.0	17.8	17.2	21.7	38.0	44.0	49.0
Somerville	26.9	5.7	19.7	20.2	21.4	21.5	40.5	57.8	37.4

* The 1925-1929 average as given in our 1929 report is here revised on the basis of the population figures of the 1930 census.
† Rate based on population figures furnished by the Census Bureau as of August 26, 1930.
‡ We are informed that fifteen of the twenty diphtheria deaths reported in Providence were in nonresidents.

The problem of nonresident deaths from diphtheria does not seem to be so serious as in the case of typhoid, perhaps because hospitalization is less general. Two cities, Duluth and Salt Lake City, reported each but a single death from diphtheria in 1930; in both instances the victim was a nonresident. In San Diego the three diphtheria deaths reported were in nonresidents. In Providence, fifteen of the twenty diphtheria deaths were in nonresidents. Camden, Cincinnati, Jacksonville, Knoxville, Tampa and Trenton are other cities that appear to have had a considerable proportion (30 per cent or more) of nonresidents among their diphtheria fatalities. On the other hand, we are informed that the Grand Rapids isolation hospital is outside the city limits and that four Grand Rapids residents died there from diphtheria in 1930. A true Grand Rapids diphtheria death rate would therefore be nearer 3.0 than 0.6, as given in the tables.

The New England cities (table 1) appear to have had a satisfactory year, all except Waterbury and Somerville (both new to our lists) having a lower rate than that for the preceding five-year average. Somerville seems indeed to have had a real epidemic, with the highest rate recorded for any of the New England cities in several years. Improvement is particularly marked in several of the Connecticut cities, notably Bridgeport and Hartford. Boston, Worcester and Springfield reach new low levels.

TABLE 2.—*Death Rates of Cities in Middle Atlantic States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1930	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Syracuse	0.9	2.0	22.9	12.9	16.6	17.4	17.7	31.1	55.4
Rochester	1.5	7.5	16.9	12.7	22.1	32.4	32.3	45.9	96.6
Yonkers	1.5	10.4*	17.0	17.7	25.3	....	....	....	....
Utica	2.0	13.4†	....	....	....	....	....	....	....
Scranton	2.1	11.7	12.3	22.1	23.4	....	....	77.8‡	48.6‡
Philadelphia	2.5	11.8*	16.7	22.7	24.6	34.1	50.0	100.6	119.4
New York	2.9	10.7*	14.0	21.8	28.0	40.0	58.0	85.8	134.4
Albany	3.1	7.5	12.8	10.4	20.0	31.6	26.9	....	....
Erie	3.4	5.8	16.8	15.1	17.7	27.1	42.3	23.1§	....
Reading	3.6	7.3*	21.1	16.9	35.7	29.2	70.1	72.0	94.1
Trenton	5.7#	4.4*	7.3	8.8	12.3	15.8	23.6	92.7‡	89.7‡
Pittsburgh	8.5	11.5	20.1	22.3	29.3	20.4	36.9	32.9	86.4
Buffalo	8.7	9.1	24.0	27.3	22.0	18.4	24.8	53.3	60.9
Paterson	8.7	9.1*	18.5	13.5	16.1	25.5	52.9	111.8	145.4
Newark	10.8	14.5*	9.7	14.6	23.3	30.1	46.7	79.1	110.4
Camden	11.8#	21.9*	20.3	23.2	38.8	48.9	52.6	93.8	194.0
Elizabeth	14.8	13.2	19.2	19.3	14.8	51.7	42.4	60.5	79.3
Jersey City	16.1	11.5*	18.4	21.0	23.2	32.6	57.9	85.4	108.6

* The 1925-1929 average as given in our 1929 report is here revised on the basis of the population figures of the 1930 census.
† Lacks data for 1925.
‡ Diphtheria deaths from Chapin's Municipal Sanitation.
§ Lacks data for 1895.
# We are informed that two of the seven diphtheria deaths in Trenton and four of the fourteen in Camden were in nonresidents.

Nearly all the cities in the Middle Atlantic states (table 2) reduced their diphtheria death rates in 1930 as compared with their five-year averages. New York, with a rate of only 2.9, and Philadelphia (2.5) make amazingly good records. Yonkers shows a sweeping improvement over its average, and so do Utica and Scranton. Elizabeth and Jersey City have not been so fortunate. The group as a whole experienced a relatively low diphtheria mortality and showed the greatest proportional improvement of any geographic division (table 13).

TABLE 3.—*Death Rates of Cities in South Atlantic States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1930	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Atlanta	1.1	7.0	13.3	10.1	12.5	14.2	11.1	10.5	8.8
Baltimore	2.5	7.6*	11.4	13.5	14.2	16.1	33.0	68.1	70.0
Tampa	3.0†	4.6	5.2	9.5‡	....	....	....	....	....
Miami	3.6	5.4§	....	....	....	....	....	....	....
Washington	3.7	7.1*	10.5	11.9	6.9	11.2	23.5	50.9	77.9
Jacksonville	5.4†	6.0*§	....	....	....	....	....	....	....
Richmond	5.5	6.9*	9.8	5.8	7.0	9.8	24.4	17.6	59.7
Norfolk	6.2	4.1*	4.3	4.1	6.7	17.0	....	....	....
Wilmington	10.3	10.9*	11.6	15.2	18.0	27.8	50.9	84.9	83.8

* The 1925-1929 average as given in our 1929 report is here revised on the basis of the population figures of the 1930 census.
† We are informed that two of the seven diphtheria deaths reported in Jacksonville and one of the three in Tampa were in nonresidents.
‡ Lacks data for 1915 and 1916.
§ Lacks data for 1925.

1. The preceding articles were published in THE JOURNAL, Sept. 20, 1924, p. 918; April 25, 1925, p. 1269; April 3, 1926, p. 1005; April 30, 1927, p. 1396; May 19, 1928, p. 1621; May 25, 1929, p. 1759; June 7, 1930, p. 1838.

2. Typhoid in the Large Cities of the United States in 1930, J. A. M. A. **96**: 1576 (May 9) 1931.

3. It should be noted that the figures include all diphtheria deaths that have occurred within the city limits, nonresidents as well as residents. In some instances this undoubtedly gives an exaggerated impression of the amount of diphtheria in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13).

The cities of the South Atlantic states (table 3), with one exception, report lower diphtheria death rates for 1930 than their averages for the five years 1925-1929. Norfolk, however, which has had relatively low

TABLE 4.—*Death Rates of Cities in East North Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1930	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Flint	0.0	4.5	29.9	25.5	12.7	11.0	16.8	6.9	69.2
Dayton	0.5	4.6	9.4	9.3	22.1	13.3	17.2	27.4	82.9
Grand Rapids	0.6*	2.0	19.6	13.5	20.0	26.6	17.2	32.4	99.2
Fort Wayne	0.9	5.1	13.1	6.3	....	....	....	....	....
Canton	1.9	2.9†	17.5	15.1‡	....	....	....	....	....
Toledo	2.4	7.2†	22.4	14.1	25.4	20.4	56.8	34.6	89.3
Cincinnati	2.9§	5.2†	10.6	13.2	13.9	17.0	17.3	37.3	103.7
Akron	3.1	4.9	10.4	18.9	27.8	21.8#	....	....	....
Columbus	3.4	4.6	8.5	7.6	12.1	10.5	11.6	28.5	56.9
Indianapolis	3.6	6.6†	11.7	21.4	13.5	13.3	15.9	36.4¶	97.3‖
Milwaukee	3.6	8.5	11.4	19.8	27.8	26.4	22.7	51.7	116.2
Evansville	3.9	3.7	13.9	14.9	16.1	21.2	13.8	18.1	69.7
Cleveland	4.1	15.3†	14.7	20.0	24.6	20.8	42.6	45.3	95.7
Peoria	5.7	4.9	7.4	10.8	10.6	10.9°	14.0	14.6	68.0
South Bend	5.8	....	....	....	....	....	....	....	....
Youngstown	6.5	10.5†	18.5	11.9	40.5	33.5	28.0	17.6	28.4+
Detroit	11.0	19.7†	24.3	32.2	33.3	22.6	38.5	62.9	132.9
Chicago	12.2	11.7†	17.5	31.2	37.9	27.0	33.9	69.7	117.3

* Rate including the four Grand Rapids residents who died of diphtheria at the isolation hospital outside the city limits is 3.0.
† The 1925-1929 average, as given in our 1929 report, is here revised on the basis of the population figures of the 1930 census.
‡ Lacks data for 1915.
§ We are informed that four of the thirteen diphtheria deaths reported in Cincinnati were in nonresidents.
# Data for 1909 only.
¶ Diphtheria deaths from Chapin's Municipal Sanitation.
‖ Lacks data for 1890.
° Lacks data for 1907, 1908 and first four months of 1909.
+ Data for 1893 and 1894 only.

average rates since 1915, has followed its 1929 rate of 6.5 with a 1930 rate of 6.2. Atlanta and Baltimore again make low records, both cities showing remarkable improvement. Wilmington again brings up the foot of the list. Diphtheria has scourged this city severely

TABLE 5.—*Death Rates of Cities in East South Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1930	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Louisville	1.6	4.6	10.4	9.5	9.0	....	....	39.0*	49.6*†
Chattanooga	1.7	5.9	8.7	8.9	....	....	....	....	....
Knoxville	2.8‡	6.3	11.2	....	....	....	....	....	....
Memphis	4.7	5.8§	9.5	11.2	11.9	13.4	6.9	10.0	28.5
Birmingham	7.7	5.4§	5.3	7.2	8.3	6.2	13.4	16.5	26.3
Nashville	11.7	11.8	8.0	8.9	7.3	10.3	13.9	30.1	28.4

* Diphtheria deaths from Chapin's Municipal Sanitation.
† Lacks data for 1890.
‡ We are informed that one of the three diphtheria deaths reported in Knoxville was in a nonresident.
§ The 1925-1929 average, as given in our 1929 report, is here revised on the basis of the population figures of the 1930 census.

during the past forty years. It would be interesting to see what could be accomplished in Wilmington by an active antidiphtheria campaign, backed by all the fervor of civic pride and humanitarian impulse.

The East North Central group (table 4) as a whole shows a great reduction in 1930 as compared with 1929, the improvement in Detroit and Cincinnati being especially noteworthy. Detroit has carried on a particularly active immunization campaign. Whether for this or for some other reason the Detroit rate for 1930 was the lowest ever recorded in that city and was only about half the 1925-1929 average. This geographic division, which for some years has had the highest diphtheria rate in the country (table 13), is apparently entering a better period. Only Evansville, Peoria and Chicago report 1930 rates somewhat above their five-year averages.

The East South Central cities, which in 1925-1929 had the lowest diphtheria mortality in the country (6.34) excepting only the Mountain and Pacific group (6.28), have not fared so well in 1929 and 1930 (table 13). Birmingham is but little better off in 1930 (7.7) than in 1929 (9.2) and Nashville is considerably worse. Chattanooga and Louisville, however, have 1930 rates notably better than their 1925-1929 averages (table 5). This group of cities is presumably favored by its climatic conditions and, as shown in table 5, its diphtheria mortality for several decades has been distinctly lower than that of the Northern cities of the United States. Whether its present relatively high rate is due to the excessive prevalence or high virulence of the disease or

TABLE 6.—*Death Rates of Cities in West North Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1930	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Duluth	1.0*	2.0†	6.0	10.2	8.8	38.2	29.1	7.6	49.5
Des Moines	2.1	5.2†	15.1	16.6	15.1	23.8‡	....	....	....
St. Paul	2.2	5.2	17.5	20.7	31.4	31.1	27.9	43.3	75.4
Minneapolis	2.4	11.9	13.4	19.9	28.3	24.4	44.6	34.0	55.0
Wichita	3.6	4.2	....	....	....	....	....	....	....
Kansas City, Mo.	4.0	4.7	14.4	22.8	15.7§	....	....	....	....
Omaha	4.7	6.4†	22.9	35.8	15.8	24.5	20.5	28.2	82.9
Kansas City, Kan.	4.9	4.6	9.8	23.1	12.4§	....	....	....	....
St. Louis	5.1	10.3†	16.1	24.4	23.7	19.4	43.3	62.9	67.7

* We are informed that the one death reported in Duluth was in a nonresident.
† The 1925-1929 average, as given in our 1929 report, is here revised on the basis of the population figures of the 1930 census.
‡ Data for 1909 only.
§ Lacks data for 1910 and 1911.

whether it can be explained on the basis of controllable factors is a point to which earnest consideration is doubtless being given by the municipal officials of the cities concerned.

The West North Central cities (table 6) had a good diphtheria year in 1930, the mortality being lower than the five-year average in all except Kansas City, Kan.,

TABLE 7.—*Death Rates of Cities in West South Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1930	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Tulsa	2.1	12.5*	8.3†	....	....	....	....	....	....
Houston	4.1	8.2*	6.4	6.1	7.8	10.5	4.2‡	2.4	1.8
Fort Worth	4.3	10.8*	1.7§	2.6#	2.6	2.8	5.4	....	....
Dallas	6.9	9.8*	8.3	7.4	6.9	8.1	16.9	16.0	21.8
Oklahoma City	7.0	10.9	....	....	....	....	....	....	....
San Antonio	7.3	10.3	7.7	8.7	6.7	7.6	17.1	20.6	4.4
New Orleans	8.5	8.5	6.5	11.6	19.6	10.2	11.5	17.1	31.3
El Paso	8.8	7.3*	20.0	17.6	29.2	....	....	....	....

* The 1925-1929 average, as given in our 1929 report, is here revised on the basis of the population figures of the 1930 census.
† Data for 1923 and 1924 only.
‡ Data for 1900 and 1901 only.
§ Data for 1924 only.
# Lacks data for 1918 and 1919.

which showed a slight increase. Duluth again makes a fine record as, indeed, does the group in general, only one city (St. Louis) having a rate over 5.0.

The West South Central cities (table 7) did better in 1930 than in 1929 (table 13), but this group has not in recent years had as low diphtheria rates as it

would seem entitled to from its climatic conditions. Perhaps this region, and some of the East South Central cities as well, are suffering from an epidemic rise in diphtheria such as affected the cities on the Pacific slope in 1920-1924. The situation in these two groups will bear watching.

The rapidly growing cities in the Pacific states (table 8) have relatively few diphtheria deaths. As in 1928 and 1929, so in 1930 this group of cities reported the lowest diphtheria mortality of any group in the country (table 13). But why has diphtheria run consistently lower for years in Seattle than in Portland and Tacoma? Climatic influences may plainly be overshadowed by others. San Francisco and San Diego had approximately the same diphtheria rate in 1930 and both cities were notably better off than Los Angeles.

TABLE 8.—*Death Rates of Cities in Mountain and Pacific States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1930	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Salt Lake City	0.7*	10.1	12.5	14.5	15.1	34.2	46.0	14.8	56.7†
Long Beach	1.4	2.6	10.4‡	....	....	....	....	....	....
Seattle	1.6	1.4	6.6	5.5	5.2	12.5	13.4§	27.2#	....
Spokane	1.7	7.5	11.3	4.2	7.6	25.8	....	59.5#	18.1
San Diego	2.0*	6.6¶	12.2	10.5	8.0	5.8	2.4	....	....
San Francisco	2.2	4.6	23.0	17.0	9.2	14.4	44.2	21.6	54.8
Portland	2.3	6.4	11.3	6.0	12.3	12.2	20.2	....	....
Denver	3.5	8.9¶	23.2	6.7	10.2	20.8	29.6	27.3	130.2
Oakland	3.9	7.4	18.8	8.1	10.3	16.1	29.1	....	....
Los Angeles	5.6	7.0¶	14.4	7.1	7.5	15.3	25.4	35.8	46.0
Tacoma	8.4	9.3¶	12.4	7.7‖	....	....	....	....	....

* We are informed that all the diphtheria deaths reported from this city were in nonresidents.
† Lacks data for 1890 and 1891.
‡ Lacks data for 1920 and 1921.
§ Lacks data for 1900.
# Diphtheria deaths from Chapin's Municipal Sanitation.
¶ The 1925-1929 average, as given in our 1929 report, is here revised on the basis of the population figures of the 1930 census.
‖ Lacks data for 1915.

TABLE 9.—*Ten Cities with Highest Diphtheria Death Rates for 1930* *

Somerville	26.9	Nashville	11.7
Jersey City	16.1	Detroit	11.0
Elizabeth	14.8	Newark	10.8
Chicago	12.2	Lynn	10.7
Camden	11.8	Wilmington	10.3

* In the table of highest diphtheria death rates for 1929, Camden was included by error. Its actual rate for 1929 was 11.6 (not 19.3 as given in the table). The tenth city with highest diphtheria death rate for 1929 should have been given as Youngstown (rate 12.7) instead of Camden.

TABLE 10.—*Ten Cities with Lowest Diphtheria Death Rates for 1930*

Flint	0.0	Cambridge	0.9
Dayton	0.5	Fort Wayne	0.9
Grand Rapids	0.6	Syracuse	0.9
New Haven	0.6	Duluth	1.0
Salt Lake City	0.7	Atlanta	1.1

The list of the ten cities with the highest diphtheria mortality for 1930 (table 9) contains five cities (Elizabeth, Chicago, Detroit, Newark and Lynn) that were also on the list in 1929. Chicago had the highest diphtheria rate of the five cities with more than a million population. At the other extreme Grand Rapids, New Haven, Cambridge and Duluth are on the list of the ten lowest diphtheria rates for both 1930 and 1929. Flint, Mich., is the only city that has achieved the distinction of having not a single diphtheria death within its borders in 1930, a record held by Des Moines in 1929.

It has been noted heretofore in these summaries, and has been frequently observed by students of diphtheria statistics, that diphtheria mortality has usually ranged higher in the Northern cities than in the Southern. In 1930, however, it is striking that the diphtheria mortality in the East South Central and West South Central cities was considerably higher than in the West North Central cities (table 13). At present it seems hardly possible to determine what factors have produced this reversal of the usual mortality ratios.

A similar question is raised by the remarkable decline in the general urban death rate from diphtheria through-

TABLE 11.—*Number of Cities with Various Diphtheria Death Rates*

	No. of Cities	40 and Over	20 and Over	10 and Over	5 and Over	Under 5
1890-1894	64	52	60	61	62	2
1895-1899	66	34	53	63	65	1
1900-1904	68	22	46	64	66	2
1905-1909	72	3	43	66	71	1
1910-1914	79	1	36	63	78	1
1915-1919	84	0	25	62	81	3
1920-1924	88	0	14	65	86	2
1925-1929	92	0	1	22	67	25
1927	92	0	2	31	62	30
1928	92	0	1	21	58	34
1929	92	0	2	17	47	45
1930	93	0	2	11	32	61

TABLE 12.—*Total Diphtheria Death Rate for Eighty-Eight Cities, 1923-1930* *

	Population	Diphtheria Deaths	Diphtheria Death Rate per 100,000 Population
1923	31,060,848	4,078†	13.13
1924	31,722,841	3,439	10.84
1925	32,384,834	3,133	9.67
1926	33,046,827	3,106	9.40
1927	33,708,820	3,493	10.36
1928	34,370,813	3,176	9.24
1929	35,032,806	2,738	7.82
1930	35,694,802	1,827	5.12‡

* The five following cities are omitted from this summary because data for the full period are not available: Jacksonville, Miami, Oklahoma City, South Bend and Utica.
† Data for Fort Worth lacking.
‡ The rate for the ninety-three cities in 1930 is likewise 5.12 (population 36,326,310; diphtheria deaths, 1,859).

TABLE 13.—*Total Diphtheria Death Rates per Hundred Thousand Population for Ninety-Three Cities According to Geographic Divisions*

	1930 Population	1930 Diphtheria Deaths	1929 Diphtheria Deaths	Diphtheria Death Rates 1930	1929*	1925-1929
New England	2,601,824	119	195	4.57	7.53	8.34
Middle Atlantic	12,650,337	519	911	4.10	7.30	9.97
South Atlantic	2,322,692	84	121	3.65	5.32	7.37†
East North Central	9,302,752	725	1,005	7.79	11.17‡	11.21‡
East South Central	1,200,032	60	85	5.00	7.31	6.34
West North Central	2,648,663	99	136	3.74	5.20	7.82
West South Central	1,835,646	118	172	6.43	9.71	9.24§
Mountain and Pacific	3,764,389	135	137	3.59	3.76	6.28

* The rates for 1929 differ from those given in our previous report both on account of the new cities in six groups and also because of the recalculations with population figures based on the 1930 census.
† Data for 1925 for Jacksonville and Miami lacking.
‡ Data for South Bend lacking.
§ Data for Oklahoma City for 1925 and 1926 lacking. Attention is hereby called to a mistake originally made in table 13 of our 1928 report and carried over in table 16 of the 1929 report: the diphtheria death rate for the West South Central group was given as 6.18, whereas the correct figure is 9.24.

out the country (table 12). In 1930 the lowest diphtheria rate yet recorded was reached, a rate a little more than half that obtaining five years before. Whether the recent sweeping reductions in diphtheria mortality in various parts of the United States have been caused by natural fluctuations in the disease itself or in the susceptibility of the human host, or whether and in what part they have been brought about by such preventive measures as toxin-antitoxin and toxoid immunization, is a matter on which convincing evidence may be forthcoming in the course of the next decade. The available facts certainly encourage a continuance of the attempts to prevent diphtheria by protective inoculation.

THE INDISPENSABLE USES OF NARCOTICS

PROFESSIONAL USE OF OPIUM AND COCA LEAVES, THEIR DERIVATIVES AND PREPARATIONS, UNDER HARRISON NARCOTIC ACT*

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In the United States, the right to employ narcotic drugs in the treatment of disease is evidenced primarily, not by licenses granted by the federal government but by licenses granted by the states, territories and insular possessions, and by the District of Columbia and the Canal Zone, where the narcotic drugs are to be used. These are the licenses that authorize, in the several jurisdictions named, the practice of medicine, of dentistry and of veterinary medicine. Authority so to practice carries with it conditional authority to employ narcotic drugs in the course of such practice. In some of the jurisdictions named, licenses to practice osteopathy confer on osteopaths similar conditional authority to employ narcotic drugs in the course of osteopathic treatment. The exercise of that authority is conditioned in all cases on compliance with the laws that specifically govern the use of narcotic drugs, commonly referred to as "narcotic laws."

Narcotic laws are of two kinds, local and national. Local narcotic laws are laws enacted by the several states, territories and insular possessions, and by or for the District of Columbia and the Canal Zone. Such laws are effective only within the jurisdiction of the local governments by or for which they were respectively enacted. National narcotic laws are laws enacted by the federal government, and these are effective uniformly throughout the country. The narcotic laws of the several states and other local jurisdictions named cover opium and coca leaves and their derivatives and preparations. In some jurisdictions they cover other drugs—eucaine, novocaine, cannabis indica, cannabis sativa, chloral hydrate and peyote. The exact scope and form of each of these local laws are determined by the jurisdiction that enacts it; they are as varied as are such jurisdictions. The many differences in these laws make it impracticable to discuss them within the scope of this paper. Even federal narcotic laws are too numerous and varied to be fully discussed here. Fortunately, however, only one such law, commonly referred to as the Harrison Narcotic Act, is pertinent to present purposes. It relates only to opium and coca leaves and their derivatives and preparations; directly or through regulations promulgated under its authority, it covers in a comprehensive way the professional use of those drugs; it is uniform throughout the United States. The Harrison Narcotic Act alone will be discussed in this paper. Fortunately, compliance with that act constitutes compliance with the local narcotic laws almost everywhere. That, however, is not always the case, and the practitioner who would avoid trouble should, before he enters on his professional activities, inform himself concerning the narcotic laws of the jurisdictions in which he is about to begin practice. This he can do by consulting the published laws or regulations of that jurisdiction or by making inquiry of its proper officials.

DEFINITIONS

The Harrison Narcotic Act covers only one class of narcotic drugs, opium and its derivatives and preparations. It covers also coca leaves and derivatives and preparations of them, which are not narcotics. The act is generally known and referred to, however, as the Harrison *Narcotic* Act, and the drugs to which it relates are commonly referred to as *narcotic* drugs. The act is therefore so referred to in this chapter, or referred to simply as "the act." Both terms connote the act as now amended and the regulations promulgated to carry it into effect.

The terms "narcotic" and "narcotic drugs" are used to designate opium and coca leaves and their derivatives and preparations.

The word "practitioner" is used to mean practitioners of medicine and of dentistry, and to include osteopaths so far as they are lawfully authorized to employ narcotic drugs. This article does not cover specifically veterinary practice. The general principles stated are applicable, however, to practitioners of veterinary medicine.

QUALIFYING UNDER THE HARRISON NARCOTIC ACT

Nature of Federal Jurisdiction.—The federal government has no authority to say who may and who may not administer, dispense and prescribe narcotic drugs in any state, except as it may authorize officers and employees of the United States government and persons engaged in interstate and foreign commerce to do so, each within the limits of his authority or calling. To control narcotic drugs and their professional use within the several states, the federal government resorts to its taxing power. It imposes an annual tax on commerce in and the professional use of such drugs. Then, under the guise of regulations to facilitate and insure the collection of that tax, it makes regulations that are in fact designed primarily to prevent their misuse. Without the tax, federal supervision and control would vanish from the states.[1] The Harrison Narcotic Act is effective, however, not only in the states, where the federal government can obtain jurisdiction only through its taxing power, but also in the territories, District of Columbia, Canal Zone and insular possessions, where

* These articles are prepared under a plan of cooperation between the American Medical Association, the Committee on Drug Addiction of the Division of Medical Sciences of the National Research Council, and the Division of Mental Hygiene of the United States Public Health Service. Their object is to reduce the legitimate use of addiction drugs to a minimum by replacement, wherever possible, with other remedies that will accomplish the desired result. The physicians of the United States are the essential group in any such attempt and it is hoped that these articles will be useful to them in their practice. The funds for this work have been donated to the National Research Council by the Bureau of Social Hygiene, Inc.

1. The claim sometimes made that the federal government, under its treaty making authority, can enact narcotic laws in derogation of rights reserved by the federal constitution to the states and the people, is regarded by the writer as unsound.

it might legislate directly if it deemed that course expedient. The act and the regulations under it are for all practical purposes uniform throughout the United States.

Registration.—On every practitioner who uses narcotic drugs professionally, the federal government imposes a tax of $1 a year. A practitioner must pay this tax and be registered before he can obtain narcotic drugs for professional use, or administer, dispense or prescribe such drugs, except that he may administer or prescribe, but not dispense, certain more or less attenuated narcotic preparations, commonly referred to as the "exempt preparations."

A practitioner desiring to register must make application on a form furnished by the collector of internal revenue.[2] When he files his application, he must deposit with the collector the required tax, $1, which is payable for any year or any part of a year. Such an application must be filed with the collector of internal revenue in each district in which the practitioner intends to maintain an office. If he intends to maintain more than one office even in one collection district, he must register each office separately. A practitioner, however, who maintains an office duly registered with the collector of internal revenue, where his stock of narcotic drugs and his narcotic records are kept, may administer, dispense and prescribe such drugs in other collection districts in which he may engage in practice, without incurring additional tax liability, provided he opens no office or offices in such other collection districts.

Information as to the identity and location of the local collector of internal revenue can be obtained from the postmaster or from any bank or any practitioner already registered. The local collector of internal revenue will supply information as to the boundaries of collection districts.

On the filing of a practitioner's initial application for registration, the collector of internal revenue refers it to the narcotic agent in charge in the district, for his information, and investigation if necessary. The collector is guided by the recommendation of the narcotic agent in determining whether an applicant shall or shall not be registered. A practitioner who is authorized by the laws of the jurisdiction in which he practices to use narcotic drugs professionally is entitled, however, to registration as a matter of right, but he must furnish the collector with adequate evidence of that right. If there is any question as to the authority of an applicant with respect to this matter, the narcotic agent and the collector of internal revenue are guided by the construction placed on the local statutes by the officers of the jurisdiction in which the applicant is practicing or is to practice. If a practitioner's application and credentials satisfy the narcotic agent and the collector of internal revenue that he is entitled to registration, he may register. A practitioner's initial registration can be effected at any time, but thereafter he must register on or before the first day of July of each year, preferably in June, paying the same tax, $1, every year. He retains his original registration number from year to year.

When a practitioner first registers, he is assigned a registration number and given a "special tax stamp." At this time he should obtain a supply of official order forms, which are necessary to enable him to purchase narcotic drugs for his professional use. The special tax stamp must be kept conspicuously posted in the office named on it. The significance and use of the registration number and the order forms will be described later.

If a registered practitioner transfers his office from one location to another, he must report that fact to the collector of internal revenue of the district in which the old office was located and have the transfer entered on the face of his special tax stamp. Such instructions as may be needed for the completion of the transfer of registration should be obtained from the collector when the transfer is reported to him.

If a practitioner fails to register and to pay the required tax within the time fixed by law, a penalty of 25 per cent is added when the tax is paid. This may be remitted, however, by the Commissioner of Narcotics, if adequate cause is shown for the failure. A practitioner who has registered tardily, and who has used narcotic drugs professionally during the interval within which his registration has lapsed, is liable to be fined not more than $2,000 or to be imprisoned for not more than five years, or both. A practitioner whose record is good and whose tardiness in registration is looked on as probably an oversight may be given an opportunity to explain his default and to tender an offer of money by way of compromise. If his explanation and tender are acceptable to the Commissioner of Narcotics, he may be able thus to escape criminal prosecution and all that it implies.

What has been said thus far with respect to registration has had reference to the use of narcotic drugs generally. If a practitioner desires to *dispense* any of the so-called exempt narcotic preparations, as distinguished from administering and prescribing them, he must register in a special class.

ADMINISTERING, DISPENSING AND PRESCRIBING

Procuring Narcotic Drugs for Professional Use.—A practitioner who desires narcotic drugs for professional use, other than exempt narcotic preparations, must obtain them from a registered wholesale dealer, except that he may obtain aqueous or oleaginous solutions in which the narcotic content does not exceed 20 per cent of the complete solution, in quantities not exceeding one ounce at any one time, from a registered retail dealer, to be used in legitimate office practice. No narcotic drug or preparation, other than those just named and the exempt narcotic preparations, can be lawfully purchased for office use from a retail dealer. Prescriptions for nonexempt narcotic drugs for the prescriber's professional use cannot lawfully be issued or filled. The writing of prescriptions for fictitious patients, to obtain narcotic drugs for general professional purposes, to avoid the use of official order forms and to avoid making purchases from registered wholesale dealers, is not permitted; narcotic drugs obtained on prescriptions are for the exclusive use of the patients named in such prescriptions. All purchases for general professional use must be written on official order forms.

Official order forms may be purchased at a nominal cost from the collector of internal revenue with whom the practitioner is registered. Requisition blanks for the purchase of order forms can be obtained from the collector. Each order form bears at the time of delivery the name, address and registration number of the registrant for whose use it is issued and

2. Special officers are designated in the Canal Zone, Porto Rico and the Virgin Islands with whom the practitioner must register.

designates the class of registrants to which he belongs. In purchasing narcotic drugs, order forms must be executed in duplicate. The original is to be delivered to the seller. The duplicate must be retained by the practitioner for at least two years after the original is delivered. Original and duplicate must be executed in ink or indelible pencil, or on a typewriter. The signature, address and registration number of the purchaser must correspond with his name, address and registration number as recorded in the collector's office, and the actual date of execution must be stated on the order form. The fact that order forms must be signed by the practitioner in whose name they are issued, before they are valid, tends to safeguard them against unauthorized use. The practitioner, however, should keep them under lock and key. The loss or theft of order forms should be reported as soon as it is discovered, to the Commissioner of Narcotics, Washington, D. C., stating the serial numbers of the missing blanks. If their numbers are not known, they should be described as accurately as possible, so as to facilitate action to prevent their unlawful use. A copy of the report should be sent to the collector of internal revenue by whom the blanks were issued.

Narcotic drugs should be kept under lock and key. When necessarily carried about in the course of practice, they should not be left where theft is easy, as in unlocked, unattended automobiles or in the dressing rooms of dispensaries and hospitals. If narcotic drugs are lost or stolen, or accidentally destroyed, the practitioner to whom they belong must make an affidavit, in duplicate, as to the kind and quantity of such drugs and the time and circumstances of the loss, theft or destruction. If the drugs were stolen, the affidavit should show that the local police authorities were promptly notified. One copy of the affidavit must be placed on file with the practitioner's duplicate order forms. The other must be filed with the narcotic agent in charge in the district in which the practitioner is registered. The address of the narcotic agent can be ascertained from the collector of internal revenue of the district.

When a practitioner makes his annual application for reregistration, he must prepare under oath or affirmation, in duplicate, an inventory of all narcotic drugs on hand at that time. The inventory must be executed in duplicate, on forms obtained from the collector of internal revenue for that purpose. The original inventory must be kept on file by the practitioner. The duplicate must be forwarded to the collector with the application for reregistration.

General Considerations as to Administering, Dispensing and Prescribing.—A practitioner can lawfully administer, dispense and prescribe narcotic drugs to only such patients as are under his professional care. The Harrison Narcotic Act does not limit specifically the quantity that may be used or the time during which their use may be continued. It requires only that the dosage be consonant with proper professional practice. It places no restriction on the form in which narcotic drugs may be administered.[3]

The administration, dispensing and prescribing of narcotic drugs for the sole purpose of satisfying the cravings of an addict is not within the bounds of professional practice. That fact, however, does not prevent the continued use of narcotic drugs in such doses as may be found to be necessary to relieve the sufferings of a bona fide patient who has an incurable painful disease or to preserve the life of an aged and infirm addict whose life would be jeopardized by the withdrawal of his drug of addiction. A painful, incurable disease, or age and infirmity, must be present, however, to justify legally the indefinite continuance of the use of narcotic drugs. Instructions as to the form to be used in writing prescriptions in such cases are given later.

It is not unlawful under the Harrison Narcotic Act to attempt to cure narcotic addicts of their addiction, even though narcotic drugs are used in the attempt. If narcotic drugs are so used, the dosage from day to day must be accurately recorded. Unless there is a reasonably rapid reduction in the dosage and complete withdrawal within a short time, suspicion may rightly arise that the alleged attempt to cure is only a cover for the unlawful administration, dispensing or prescribing of narcotic drugs to satisfy the cravings of an addict. The best professional opinion seems to recognize the fact that an attempt to cure an addict outside the walls of a hospital or other institution is almost certainly doomed to failure and that attempts to cure under such circumstances can be justified, if they can be justified at all, only by some remarkable combination of circumstances.

A practitioner should not administer, dispense nor prescribe narcotic drugs for a stranger, unless there is obvious necessity, as in the case of a severe accident. To do so may be only to cater to addiction. It may result, too, in prosecution for violating the Harrison Narcotic Act, for the stranger in real or assumed distress may be in fact the stool pigeon of narcotic law enforcement officers. Entrapment by stool pigeons must be accepted as a legitimate and necessary step in the enforcement of such laws as the Harrison Narcotic Act. It is tolerated by the courts within more or less well defined limits, but difficulty arises and mistakes are sometimes made in applying to particular cases the general principles that the courts have enunciated. Every narcotic agent knows, however, that if he attempts entrapment without having reasonable grounds for suspecting a willingness to violate the law on the part of the person against whom the ruse is attempted, he will display his ignorance of the legal principles governing entrapment, expose himself to disciplinary measures if his conduct comes to the attention of his superior officers, and invite the rejection of the evidence thus obtained, if his method of obtaining it is brought to the attention of the court before which the case is tried.

Where stool pigeons are used and entrapment attempted, it is fair to assume that the practitioner against whom the ruse is employed has in some way laid himself open to suspicion of being willing to violate the law, or that the gossip of his friends or enemies has created the impression that he is willing to do so. Narcotic pedlers and physicians who cater to the cravings of narcotic addicts are well aware of the possible use of stool pigeons against them. They are constantly on their guard. Physicians not habitually engaged in wrong-doing are apt to be less well informed and more easily to fall prey. Innocent, unsuspecting and soft-

3. While the professional use of heroin is not unlawful, it is not expedient to prescribe it unless the prescribing practitioner knows that it is available. Congress prohibited the importation of opium for the manufacture of heroin. To carry out the spirit of the congressional prohibition, the Federal Narcotics Control Board, which then was charged with the execution and enforcement of the Narcotic Drugs Import and Export Act, went further; it adopted the policy of refusing to permit the importation of opium to replace opium or any preparation or derivative thereof that had been converted into heroin. Under this ban the supply of heroin in the United States has been greatly reduced and necessarily must continue to diminish.

hearted physicians, when appealed to by the real or pretended sufferings of pseudopatients, are in danger of letting their sympathies get the better of their judgment and of being entrapped. A physician, so entrapped, may be able ultimately to prove that he was innocent and that the entrapment was unlawful, but he will not be able to do so without trouble and expense, and possibly some reputation-destroying notoriety.

If the story and subjective symptoms of a casual patient suggest the use of a narcotic drug and the practitioner can find no objective symptoms to justify its use, it is best to resort to other methods of relieving pain, relying on the fact that a casual patient who is seeking only to satisfy his narcotic addiction, or a stool pigeon, will not under such treatment long continue to return for treatment. If, however, the administration, dispensing or prescribing of a narcotic drug seems to be imperatively demanded, the minimum amount should be given that is compatible with the circumstances of the case and never more than is necessary to provide for the patient's needs until the practitioner can satisfy himself as to the good faith of the patient. A practitioner had better steel his heart against the wiles of a stranger who cannot prove a local residence or give references to former physicians and others, sufficient to prove his good faith promptly.

Administering Narcotic Drugs.—A practitioner can lawfully administer narcotic drugs personally to his patients, hypodermically, by mouth or otherwise, in any form or amount, with such frequency and for such a period of time as may be justified by good professional practice. It is no part of professional practice, however, to administer narcotic drugs for the sole purpose of catering to narcotic addiction. A practitioner is not required by law to keep a record of the narcotic drugs he administers. A record can do no harm, however, if the administration of such drugs is lawful, whereas its absence may prove embarrassing.

Dispensing Narcotic Drugs.—A practitioner may lawfully dispense narcotic drugs personally to his patients. "To dispense," as the term is here used, means to supply narcotic drugs to a patient, to be taken by him out of the presence of the dispensing physician, as distinguished from the supplying of such drugs for immediate use by the patient in the presence of the practitioner by whom they are supplied.

A practitioner should avoid dispensing narcotic drugs, so far as is compatible with good professional practice in the community in which he is practicing. A too extensive resort to dispensing may justify a suspicion that the dispenser is only catering to narcotic addiction, unless the circumstances clearly show that dispensing is necessary. Under no circumstances should a greater quantity of narcotic drugs be dispensed than the minimum quantity required by existing conditions. The quantity should not exceed the quantity necessary to provide for the patient until he is to be seen again by the practitioner. If any greater quantity is called for, it should be provided through a prescription, so that the entire transaction may be a matter of record.

Only the most unusual conditions can justify a practitioner in delivering narcotic drugs directly to the patient for whose use they are intended. A person whose sufferings are aggravated and whose will is weakened by disease or injury should not be tempted to use narcotic drugs improperly, as he is tempted when such drugs are left with him, under his sole control, to be used whenever he feels that they are needed. Narcotic drugs dispensed for a patient should be left in the custody of some competent and discreet nurse or other person in attendance on him. To prevent accidental poisoning, the person in whose custody they are left should be carefully instructed and duly cautioned. The drugs dispensed had better be placed in a suitable package or container, bearing instructions as to their use. Carelessness in dispensing may lead to accidental poisoning and a suit for malpractice.

A record should be kept of all narcotic drugs dispensed. The provisions of the Harrison Narcotic Act relating to such record keeping are confused and seem to be not susceptible of rational interpretation.[4] No court of appellate jurisdiction has as yet fully construed these provisions of the act, and how they will be construed no one can foretell. The practitioner who keeps a record of all narcotic drugs that he dispenses will be safe against prosecution, no matter how the law may ultimately be interpreted. The record should show the kind and quantity of narcotic drugs or preparations dispensed, the name and address of the patient, and the date of dispensing. Entries should be made on the day when the drugs are dispensed. The record should be kept for not less than two years from the date of dispensing.

Prescribing Narcotic Drugs.—Prescriptions for narcotic drugs may lawfully be written on any prescription blank. Every such prescription must contain, however, the patient's full name and address and the prescriber's signature, address and registration number. Practitioners commonly have their registration numbers printed on their prescription blanks and provide spaces for the other required entries. Every prescription must be written in ink, with an indelible pencil, or on a typewriter. It must bear the full signature of the prescriber, such as he would use on a check or in a deed. Every prescription must be dated and signed on the day on which it is written. The quantity of the narcotic drugs prescribed should be stated with clearness and accuracy, so as to safeguard against alteration. The act does not require a practitioner to keep a record of his prescriptions for narcotic drugs. Unless his office system provides such a record, in the ordinary clinical records of his office, it may be well to keep one.

A prescription for narcotic drugs need not show the ailment or injury for which it is given. Under certain circumstances, however, the condition from which the patient is suffering must be disclosed in order to warrant a pharmacist in filling the prescription. Such disclosures are necessary only when prescriptions call for unusually large quantities or doses, or are repeated over unusually long periods of time. Prescriptions calling for unusually large quantities or doses, or repeated over unusually long periods of time, justify the presumption that they are for the use of a narcotic addict. They leave pharmacists in doubt as to whether they are given solely to satisfy the cravings of narcotic addicts, in which case pharmacists cannot lawfully fill

4. Section 2 of the Harrison Narcotic Act authorizes a physician, dentist or veterinary surgeon to dispense or distribute narcotic drugs "in the course of his professional practice only," and then provides: "That such physician, dentist, or veterinary surgeon shall keep a record of all such drugs dispensed or distributed, showing the amount dispensed or distributed, the date, and the name and address of the patient to whom such drugs are dispensed or distributed, *except such as may be dispensed or distributed to a patient upon whom such physician, dentist or veterinary surgeon shall personally attend;* and such record shall be kept for a period of two years from the date of dispensing or distributing such drugs, subject to inspection, as provided in this Act." Section 6 requires that a record be kept of all the so-called exempt preparations that a practitioner dispenses, but it does not require a record of the exempt preparations that he administers or prescribes.

them, or are given for legitimate medical purposes. The law recognizes only two conditions under which such prescriptions can be given for legitimate medical purposes, and, unless they bear some evidence of having been given for one or the other of such purposes, pharmacists may refuse to fill them.

If prescriptions are given for unusually large quantities or doses of narcotic drugs, or are repeated over unusually prolonged periods of time, for a patient suffering from an incurable disease, such as advanced cancer, advanced tuberculosis, and other diseases well recognized as coming within that class, the physician should indicate the purpose of the prescription by endorsing on it that the drug is for the treatment of an incurable disease, or he may indicate that fact by the endorsement, "Exception (1), Art. 85." If such a prescription is for the purpose of supplying narcotic drugs for an aged and infirm addict whose collapse would result from the withdrawal of his accustomed doses of narcotic drugs, that fact should be indicated by endorsing on it the statement that the patient is aged and infirm, stating the age, or by endorsing on it, "Exception (2), Art. 85." The continued use of narcotic drugs, within reasonable professional limits, in either of such classes of cases is lawful, even though it may maintain or create narcotic addiction. Such endorsements as have been described serve to indicate the lawfulness of the prescriptions on which they appear and to distinguish them from unlawful prescriptions, given for the sole purpose of satisfying the cravings of narcotic addicts.

A physician should safeguard his prescription blanks, to prevent their falling into unauthorized hands. The genuineness of a prescription blank is in last analysis proved by the signature it bears. Every druggist, however, cannot be familiar with the signature of every physician whose prescriptions may be presented to him to be filled. He must rely, at least in part, on the fact that a narcotic addict or pedler is not likely to provide himself with the printed prescription blanks of a registered practitioner. A prescription written on such a blank is therefore ordinarily presumed to be genuine. Hence the necessity for preventing prescription blanks from falling into improper hands.

A pharmacist cannot lawfully dispense narcotic drugs on telephoned instructions. If a practitioner cannot leave with his patient necessary narcotic drugs, and if the patient cannot send to a pharmacist a prescription for such drugs, the physician may telephone to the pharmacist such directions as may be necessary to enable him to compound the prescription. At the same time the physician should leave with his patient a corresponding written prescription for them. The pharmacist can then compound and dispense the needed narcotic drugs and send them by messenger to the patient. The messenger, however, must make sure before he delivers the drugs that he has in his possession a bona fide prescription for them. If a physician is called on at his office or elsewhere, by telephone or otherwise, to prescribe for a patient with whose condition he is familiar, and if he believes that his patient needs a narcotic drug, he may follow the course just outlined, having the pharmacist's messenger obtain the written prescription at the practitioner's office or at some other designated place, before he delivers the drugs to the patient. The messenger carrying the narcotic drugs must be a bona fide agent of the pharmacist, so that from a legal standpoint the drugs do not pass out of the pharmacist's lawful possession before the prescription is delivered into it.

A prescription for a narcotic drug cannot lawfully be refilled, unless it is for one of the so-called exempt preparations or calls for a mixture in which the narcotic content does not exceed the narcotic content allowed by law in such preparations. Prescriptions coming within either of these two exceptions can lawfully be refilled, unless the prescribing practitioner has otherwise directed, if the refilling is in good faith, for medicinal purposes, and not for the purpose of evading the provisions of the Harrison Narcotic Act.

MISCELLANEOUS CONSIDERATIONS

Narcotic Addicts.—The Harrison Narcotic Act is silent as to the treatment of narcotic addicts. A physician who contemplates treating any such patient, however, should inform himself fully as to the laws of the state in which the treatment is to be given, before he enters on that course. Treatment outside of a thoroughly dependable institution, well organized for that purpose, is hardly justifiable, even though it is lawful. In any case, whether in or out of an institution, careful records should be kept of all medication. If narcotic drugs are not withdrawn at the outset, the record should show a continual and reasonably rapid diminution in the dose, and a comparatively early total withdrawal.

The apparently rapid and easy withdrawal of the drug of addiction should not be accepted too readily as a sign of the success of treatment. It may be evidence only that the patient is procuring a drug supply from some other source. If he is at large, he may be obtaining it from one or more other physicians, who are simultaneously treating him for the supposed cure of his habit, each without knowledge of the fact that his patient is under treatment by other practitioners.

If prescriptions for unusually large quantities or doses of narcotic drugs, or prescriptions for any quantity and dose over an unusually long period of time, for a single patient from a single physician, appear in the files of local pharmacists, the narcotic officers in the district will presumably institute an inquiry to determine the circumstances under which they are being issued. The filing of order blanks for narcotic drugs in unusual quantities, with wholesale dealers, by a single physician, may lead to a similar inquiry. A physician who prescribes or orders such drugs should be prepared to meet any such inquiry. It may be better, if the addict-patient under treatment consents, to report the circumstances to the local narcotic officers when beginning treatment, so as to forestall suspicion and misunderstanding.

Hospitals and Dispensaries.—Whether a hospital or a dispensary can possess, compound and dispense narcotic drugs on its own account depends, not on the Harrison Narcotic Act, but on the laws of the jurisdiction in which it is located. If those laws permit the hospital or dispensary to possess, compound and dispense narcotic drugs, it is entitled to registration under the act; otherwise it is not. If it cannot possess, compound and dispense narcotic drugs on its own account, the situation may be met by employing a pharmacist registered under the act, or physicians registered under the act who attend the patients in the hospital or dispensary may administer and dispense their own narcotic drugs, causing such prescriptions as they write to be filled by registered pharmacists outside the institution. Under

the circumstances last named, it may be advantageous to arrange with registered pharmacists in the vicinity of the hospital or the dispensary to fill such prescriptions.

Orders for the administration, dispensing and compounding of narcotic drugs from a supply in the possession of the institution may be in either of two forms: The initials of the physician ordering such medication may appear on the patient's record chart, or a separate prescription may be given as is customary in practice outside of hospitals and dispensaries. If both methods are in use, the chart should contain references to the prescriptions issued in the case. The records of a hospital or dispensary should account for all narcotic drugs received and disposed of and should balance with the supply on hand.

Narcotic drugs may lawfully be entrusted to the custody of responsible resident physicians, interns and nurses in a hospital or dispensary, who are not registered under the act, but in such cases they are simply the agents of the institution, or of the physician to whom such drugs belong. Resident physicians, interns and nurses can lawfully administer and dispense such drugs only under the authority of a practitioner registered under the act, and at the times and in the way directed by him. The hospital, dispensary or physician owning such drugs remains at all times responsible for their being lawfully used.

Nurses.—A nurse, whether registered or not, can lawfully have the custody of narcotic drugs and administer them to her patient, but she can do so only as the agent of the practitioner or of the patient and in accordance with the directions of the practitioner. For any unlawful use of such drugs while they are in her custody, she is responsible; but her principal, practitioner or patient as the case may be, is also liable. A practitioner who entrusts narcotic drugs to a nurse should see that they are used for lawful purposes and that when she leaves his service she returns to him all unused drugs remaining in her custody.

Exempt Preparations.—When the Harrison Narcotic Act was passed, it exempted from its provisions certain more or less attenuated narcotic preparations and certain other narcotic preparations not susceptible of use internally, when manufactured, sold, distributed, given away, dispensed or possessed as medicine and not with the intention of evading the provisions of the act. Later, the act was amended so as to require any manufacturer, producer, compounder or vender, including dispensing physicians, to register and to keep a record of all sales, exchanges or gifts of such theretofore exempt preparations. Physicians are thus placed in an anomalous position. They may administer and prescribe narcotic drugs of any kind without any statutory obligation as to record keeping. Their statutory obligation as to record keeping with respect to the potent narcotic drugs they dispense is, to say the least, obscure. But if they dispense any of the more attenuated narcotic drugs—so attenuated as to exempt them from the general provisions of the law—they must keep a record showing the date of the sale or gift, the name and address of the purchaser, and the name and quantity of the preparation.

The so-called exempt narcotic drugs comprise such as contain not more than 2 grains of opium, or one-fourth grain of morphine, or one-eighth grain of heroin, or 1 grain of codeine, or of any salt or derivative of any of them, in 1 fluidounce, or, if a solid or semisolid preparation, in 1 avoirdupois ounce, and liniments, ointments and other preparations prepared for external use only, which contain no cocaine nor any of its salts, nor alpha or beta eucaine or any of their salts, or any synthetic substitute for them. An exempt preparation must contain active medicinal agents other than narcotic drugs, in sufficient proportions to give the preparation medicinal qualities in addition to those of the narcotic drugs alone.

A practitioner who desires to dispense any of the exempt preparations must register specially for that purpose. If he is already registered as a practitioner authorized to administer, dispense and prescribe narcotic drugs generally, he may register as a dispenser of exempt preparations, without the payment of an additional tax. If he desires to register only as a dispenser of exempt preparations, however, which is hardly likely to be the case, he must pay an annual tax of $1. This tax is payable in the same manner as are other taxes imposed by the Harrison Narcotic Act.

The so-called exempt preparations may be purchased by any one like any other drug, from any pharmacist or other dealer authorized to deal in them. The use of such order forms as are required for the purchase of narcotic drugs generally, or of any other form, is not necessary. The exempt preparations can be prescribed as other drugs are prescribed, without necessarily stating the name and address of the patient, the prescriber's registration number, or other particulars. Such prescriptions can be lawfully refilled, unless they bear directions from the prescribing practitioners forbidding refilling.

Possession of Narcotic Drugs by Patients.—The unexplained possession of narcotic drugs raises a presumption of unlawfulness. To explain possession when they have been prescribed by a physician and to rebut that presumption, the bottle or other container in which the drug has been dispensed must bear the name and registry number of the druggist, serial number of prescription, name and address of the patient, and the name, address and registry number of the practitioner who wrote the prescription.

PENALTIES

A person who violates any provision of the Harrison Narcotic Act is liable to be fined not more than $2,000, or to be imprisoned for not more than five years, or both, in the discretion of the court. The Commissioner of Narcotics, however, with the advice and consent of the Secretary of the Treasury, may compromise any civil or criminal case arising under the act, instead of commencing suit thereon.

Failure to pay the required tax within the time limit prescribed by the act adds a penalty of 25 per cent to the tax when it is paid. The Commissioner of Narcotics may waive this penalty if good cause is shown for doing so.

Under the laws of some states, conviction of a violation of the Harrison Narcotic Act is a ground for the suspension or revocation of a license to practice medicine. When the state law does not contain this provision, it sometimes accomplishes the same end by authorizing the suspension or revocation of licenses on conviction of any felony, for a violation of the Harrison Narcotic Act is a felony.

535 North Dearborn Street.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS APPROVED THE FOLLOWING ARTICLE.

H. A. CARTER, Secretary.

THE USE OF MASSAGE IN INTERNAL MEDICINE

RALPH PEMBERTON, M.D.
PHILADELPHIA

The word massage is hardly more than a synonym for "rubbing" of some sort in the minds of many practitioners. There are relatively few physicians, speaking generally, who have seen massage applied, in a critical sense of the word; there are still fewer who have tried to use it themselves. Before considering the conditions to which massage can be appropriately applied in internal medicine, it is well to consider therefore the limitations that exist in putting into practice this form of therapy. Obviously, intelligent use of any therapeutic measure demands some knowledge of the benefits to be derived and the dangers resulting from improper or untimely conduction of it. Even an understanding of the physiologic basis of massage does not carry with it practical knowledge of clinical application. Knowledge of the duration of a treatment, the frequency of repetition and the vigor of application are relegated at present to the technician giving the massage. It is important, therefore, to emphasize at this point the extent to which practitioners in general are lacking in a perspective of the subject.

To endeavor to extend to the profession as a whole information regarding the use of massage is not alone sufficient, since it is recognized by those versed in this topic that there is a great dearth of persons trained and qualified to carry out this measure. Coincidentally with extension of knowledge among the medical profession there must therefore be an increase, through a definite policy of education, in the number of those persons trained to conduct the various basal forms of physical therapy, massage in particular. Considerable delay will occur before the situation as a whole can be expected to be rectified, but the vicious cycle must be broken somewhere and a beginning made in several directions simultaneously. This reform is in process of taking place, but it is important that existing conditions be appreciated.

Except for the results of trauma, the chief application of massage is in respect to various chronic conditions and chronic disease states. These fall chiefly under the captions of internal medicine and neurology, although as regards the measure under consideration these clinical fields somewhat overlap. The basis for this generalization, as pointed out in the section dealing with the physiologic influence of massage,[1] lies in the fact that the therapeutic effect of massage is achieved slowly by means of repeated exhibition over a considerable period of time. The influence of any one treatment is or should be, at least at the outset, very slight. The cumulative effect of many treatments is, however, unmistakable. Medical conditions that run an acute course in the space of ten days or two weeks offer, therefore, but little opportunity for benefit from it, although there are perhaps some exceptions to this statement.

The clinical condition with which massage has been longest associated, one indeed that has played a significant part in developing and preserving massage as a therapeutic instrument, is the rheumatoid syndrome. Another field of medicine, however, in which massage has probably had equally recognized application is the treatment of neurasthenia by the so-called rest cure, developed and standardized by S. Weir Mitchell. This will be elsewhere discussed. Massage is also of value in many other conditions and under many circumstances encountered in internal medicine, although such use of it is more or less sporadic and out of keeping with many clear physiologic indications for its employment.

In arthritis there is a wide and important field for the application of massage. It may almost be said that few, if any, advanced cases of arthritis of either the atrophic or the hypertrophic type, to follow the nomenclature of the American Committee for the Control of Rheumatism, can be expected to recover without recourse to the principles of physical therapy, massage in particular.

It is to be appreciated that arthritis is largely a systemic disease and not a disease of joints per se,[2] and that in many cases of the rheumatoid syndrome the joint structures may be little or not at all involved. It follows from this that other tissues, especially the muscle and tendinous structures, also demand attention.

Massage has three chief indications in the arthritic syndrome: First, to improve or maintain adequate conditions of circulation and drainage in the neighborhood of involved joints; second, to improve or correct the faulty physiologic processes in the soft structures and especially the muscles; and, third, to compensate somewhat for the lack of muscular activity that inevitably follows protracted local or systemic disability from arthritis or the rheumatoid syndrome. In this last connection it is thus possible to preserve in considerable degree the normal tone and bulk of muscle structure and even to bring about in atrophied muscles an apparent increase in muscle volume or at least in muscle tone as evidenced by the resistance and consistency of the tissues under the palpating hand. It should be a cardinal principle in the application of massage in arthritis that treatment should never add by trauma to the inflammatory or otherwise diseased process already present. It follows from this that massage should, for the most part, be practiced in the neighborhood of, but not immediately over, the site of arthritic involvement. There are some exceptions to this statement, in that effleurage of the lightest kind may sometimes be practiced with profit over a diseased joint. In general, however, the principle mentioned must be rigidly adhered to and the instances are legion in which a bad situation has been made worse by undue zeal or by frequency of application. It is to be remembered that most persons who practice massage are technicians without a basal knowledge of medicine, though activated by a commendable zeal for their work. Knowing of the benefits often to be derived they are not infrequently led to believe that, if a little is good, more will be better and so are led to carry treatment beyond the proper point. They are often encouraged to do this, indeed, by the patient himself, who feels no untoward

1. Pemberton, Ralph; Coulter, J. S., and Mock, H. S.: Massage, J. A. M. A. 94: 1989 (June 21) 1930.

2. American Committee for the Control of Rheumatism, J. A. M. A. 94: 57-58 (Jan. 4) 1930.

effects from light treatment and thinks he will do better with a more vigorous application. It is precisely here that the medical profession in general must be educated to the point of knowing, in all clinical conditions, when to limit the application of massage as well as when to prescribe it.

In connection with arthritis, massage can usually be preceded with profit by the application of heat to the involved part. As explained elsewhere, this opens up vascular channels and softens the tissues, permits a more vigorous application of massage, a larger range of motion of the parts concerned, and generally paves the way for massage itself. When carried out, therefore, with the preceding limitations in mind, a light form of massage in the neighborhood of the involved joint may in itself prove to be a measure of considerable "analgesic" value, as well as contributory to an eventual betterment of the local pathologic disturbance. The reader should be reminded that the processes producing the arthritic manifestations have their basis, in part at least, in marked derangement of the local physiologic equilibrium, especially in the finer circulation. The latter is apparently altered in the direction of vasoconstriction,[3] and the influence of massage, for the reasons elsewhere mentioned,[1] is toward opening up these vascular channels and so restoring the physiologic processes more or less toward normal.

Under nearly all circumstances, massage directed to the neighborhood of joints must be unaccompanied by movement of the joint. "Churning" of the joint is to be studiously avoided. One of the commonest errors made by masseurs in general is that of inducing twisting movements to the finger or other joints, together with passive flexion and extension of nearly all involved joints. A subsiding arthritis may easily be perpetuated or made worse by activities of this sort. Furthermore, the question of passive motion in the form of flexion or extension constitutes a small chapter by itself, and the indications should be clear before it is instituted. From the standpoint of possible trauma to the joint structures, many orthopedists believe that passive motion to joints is accompanied more often by detriment than by benefit. There are some exceptions to this, but in any event great conservatism must be adopted toward it. An advantage in directing massage to the tissues somewhat removed from the joint itself lies, thus, in avoiding undue passive movement of the actual joint structures.

One of the sharp therapeutic advantages in recognizing the two chief types of arthritis is in respect to the fact that arthritis of the atrophic type is prone to lead to fibrous and finally to bony ankylosis, depending on the particular apposition of the bones of the joint and on the duration of inactivity. In this type of arthritis motion should be encouraged within the limit of further trauma, preferably in the form of voluntary motion conducted by the patient himself, and this is best achieved after application of heat and massage to the part concerned.

A frequent accompaniment of the later stages of arthritis, at the chair ridden period and especially in atrophic cases, is edema of the dependent parts. This results partly from the vascular derangement accompanying the disease; partly from the absence of muscle contraction to aid in return of the peripheral blood, and partly from gravity alone. This condition is usually accompanied also by a shiny skin and other evidences of a so-called trophic disturbance. In such instances massage is the only procedure that can rectify the condition and may often appear to work miracles. In these cases and, indeed, in many cases of arthritis, the hands and feet are cold and after a course of massage there may be a marked subjective betterment as well as improvement in the surface temperature and appearance at the periphery.

Because of the systemic nature of the rheumatoid syndrome there also tends to arise an atrophy of muscular tissue referable to a process of "fibrositis" as well as to disuse. Massage, with or without the accompaniment of heat, is one of the few measures that will affect this situation. It should be carried out with great conservatism at first and confined to the limbs. As the patient becomes accustomed to the procedure, the whole body should be included at intervals of every other day. The influence of such systemic treatment is not confined to the muscular system per se but, as is elsewhere discussed,[3] exercises a more subtle influence on metabolism as a whole and on the red cells available to the circulation. There are several varieties of technic in the administration of massage as elsewhere discussed but, so far as arthritis is concerned, those methods which embody stroking and gentle compression rather than pinching and squeezing, are preferable. Great force is not necessary, especially on beginning the treatment, and any one can demonstrate for himself the change in the distribution of blood in the superficial capillary bed from even the lightest form of stroking. A definite contraindication to massage, most of all to vigorous massage, is to be seen in cases, arthritic or otherwise, accompanied by fever or by any debilitating complication. The changes in circulation induced by massage may easily be the means of carrying material from one part of the body to another, and any suspicion of malignancy should constitute a contraindication to its use. In such conditions as phlebitis, massage may induce dislodgment into the circulation of fragments of a blood clot, for example, which might find fatal lodgment in the heart, lungs or elsewhere. It is furthermore to be remembered, as already remarked, that muscles which are the site of myositis or other disturbance of physiology, may be and usually are the accumulation of a certain amount of metabolic "detritus." This is almost wholly analogous to the obvious detritus, in the form of extravasations of blood, that accompanies trauma. The unduly rapid absorption of this detritus, produced by massage, may suffice to induce some toxemia and even fever, especially in the elderly.

THE USE OF MASSAGE IN DISTURBANCES OF THE CIRCULATION

One of the fields in which it might be supposed that massage would have an obvious application is that of disturbances of the circulation. Curiously enough, however, in this field massage is but little employed although at many sanatoriums in this country and Europe baths and some form of massage are given more or less as a routine to most patients. The adjuvant mechanical influence of massage in returning tissue fluids and other material from the periphery to the general circulation might have suggested a wide use for it in cardiac decompensation, with or without actual edema, especially as general massage may induce considerable diuresis in normal persons. Every clinician determines the presence of edema by pressing a finger

3. Pemberton, Ralph: Arthritis and Rheumatoid Conditions, Philadelphia, Lea & Febiger, 1930.

on the involved part with the aim of determining whether pitting is present. When pitting is thus obtained, it is obviously evident that the fluids within the tissues concerned have been somewhat displaced. The analogy that this effect could sometimes be exerted on a larger scale throughout a whole limb should be simple, but it seems, indeed, to have escaped large recognition in this country. Thus, reference to a widely used American textbook of medicine reveals no mention of the subject in this connection, although English textbooks not infrequently include discussion of it. In almost any cardiac condition with decompensation accompanied by edema, gravity determines localization of the edema to the dependent parts. These parts are usually the feet, the legs, the buttocks and the back. In such cases, therapy is customarily confined for the most part to restriction of the fluid and food intake with or without pharmacologic efforts to increase the *vis a tergo* from the heart. The peripheral tissues of the body are often left to cope, as best they may, with the fluids in them. In health the circulatory dynamics are aided by contraction of the long muscles, a factor which is, of course, absent in conditions of inactivity and enforced rest accompanying heart disease. Under the latter circumstances, properly given massage may be useful.

Massage is no more a specific in such conditions than is rest or the exhibition of digitalis, but, together with these and with a suitable curtailment of the diet and fluid intake, it further influences the mechanics of the situation. It must not be overlooked that under these circumstances massage might conceivably induce undue or too rapid disturbance or resorption of the body fluids or other substances and so induce toxemia. The practitioner should therefore use great caution in the institution of such measures, proceeding to a more vigorous application only when the way has been opened by experience. Massage may also be of value in certain disturbances of circulation at the periphery, such as acroparesthesia, Raynaud's disease and intermittent claudication.

There is nothing in the aforementioned considerations, of course, to justify oversight of the broad principles concerned in the management of disturbances in the dynamics of the circulation. It is a purpose of the present article to point out additionally the extent to which the proper use of massage may sometimes aid and abet the various orthodox measures which should be resorted to.

THE USE OF MASSAGE IN ANEMIA

From what has been said in the preceding section and in that treating with the physiologic influence of massage, the implication is clear that massage should have applications of varying extent in conditions accompanied by anemia. The return of red cells to the circulation achieved by massage should be of limited but definite importance in anemic persons. The increase in the red cell count following massage is demonstrable in any normal individual, but it is noteworthy that this influence is apparently more graphic in anemia than in conditions of health. In carrying out massage on the subjects of anemia, great care must be exercised to avoid overapplication. The profession has not as yet utilized this measure in respect to cardiac dysfunction and the various anemias to an extent large enough to justify dogmatism as to the full possibilities of benefit or as to the limitations to such treatment.

MASSAGE IN CHRONIC DISEASE AT LARGE

There is a wide field for the application of massage in almost any condition, devoid of acute or serious complications, which requires that the subject be kept at rest, especially in bed, for long periods of time. The practice of allowing patients to lie or rest in bed without the institution of measures capable of compensating in part for the normal activities of life is far too common. Under extreme conditions of inactivity, as in severe and widespread arthritis, the human being may literally flatten out, somewhat as does a piece of putty left on the window sill. Gravity and pressure of the bed from below may produce grotesque lateral deformity, so that the bones of the leg, for example, may be palpated as easily from behind as from in front. This is, of course, an extreme and late result but it illustrates the factors operative. Such abuses from neglect can be avoided by the proper use of massage. The evidence of the influence of massage is not limited to the locomotor system but may show itself systematically, equally graphically, in terms of an improved color, sharpened appetite, better sleep, greater contentment with confinement to bed and a general sense of well-being.

The use of massage is important also as a contribution to the maintenance of health in the elderly. As such persons become less able to take exercise and of necessity lead more sedentary lives, they lose many of the benefits incidental to bodily activity. Massage offers a partial substitute for such activity. Elderly persons should never enter on a course of massage except at proper hands and with great conservatism; but many executives in their later years, who carry large responsibilities, have found that massage, in conjunction with suitable periods of rest and mild forms of activity, enables them to maintain themselves at a higher level of efficiency.

Whatever the purposes of systemic massage, whether for a specific disease or for more general ends, it must always be followed, as elsewhere pointed out, by an adequate period of rest, generally about an hour. A point which requires great emphasis is the fact that systemic massage makes demands on the intangible reserves of the body such that depletion may result if the massage is combined with other forms of active therapeusis. The mistake is commonly made of subjecting persons to massage in addition to such measures as sweating, the removal of focal infections, the use of vaccines and the like with the net result that the sum total of therapeutic activity taxes the individual as a whole beyond his capacity to respond in respect to any of the measures applied. The end-result of such overtreatment is therefore not only failure of benefit but positive detriment in the way of fatigue, nervousness and even exacerbation of the original complaint. The importance of preserving a balance between the various forms of physical therapy applied, on the one hand, and the capacity of the individual to yield the response desired, on the other, must never be forgotten.

A fundamental consideration is that tissues of all kinds require a certain minimum of rest for reparative processes. It is common knowledge that the broken leg requires rest in the form of immobility until the repair, which means union, is achieved. It is commonly overlooked, though equally true in principle, that protoplasm of whatever kind also demands opportunity for repair. In the field of physical therapy this usually means adequate care and rest not only of the parts concerned but also of the body as a whole.

Council on Pharmacy and Chemistry

COMMITTEE ON FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

MEAD'S POWDERED LACTIC ACID MILK

Non-Curdling No. 1 with Dextri-Maltose

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Description.—A powdered spray-dried homogenized milk containing added lactic acid, maltose and dextrins.

Manufacture.—Clean, fresh, whole cow's milk fulfilling Chicago Board of Health requirements is standardized to 3.5 per cent milk-fat content and treated with lactic acid U. S. P. to produce an acidity of approximately 0.40 per cent expressed as lactic acid and sufficient Dextri-Maltose powder (maltose and dextrins) added to produce a final powder of 55 per cent total carbohydrates, which is equivalent to an addition of 5 per cent Dextri-Maltose to the liquid mixture. The mixture is processed at about 230 F. for from two to three minutes in a "vacuum cylinder" to produce a noncurdling product with water and quickly cooled. The cool liquid is homogenized by forcing through small apertures under high pressure whereby the fat is dispersed in fine globules. The homogenized liquid is dried by spraying into a hot air chamber. The dried powder is packed in an atmosphere of inert gas in hermetically sealed tins.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	1.5
Ash	4.25
Milk-fat (ether extract)	19.1
Protein (N × 6.38)	18.3
Maltose	16.2
Dextrins	13.4
Lactose	25.5
Acidity as lactic acid	1.75
Calcium (Ca)	0.632
Magnesium (Mg)	0.062
Sodium (Na)	0.374
Potassium (K)	0.921
Phosphorus (P)	0.495
Chlorine (Cl)	0.620
Sulphur (S)	0.068
Iron (Fe)	0.0040
Copper (Cu)	0.0021
(diluted — 1 oz. to 4½ oz. water)	
Ash	0.8
Milk-fat (ether extract)	3.5
Protein (N × 6.38)	3.3
Carbohydrate	10.0
Acidity as lactic acid	0.3
*p*H	4.6

Calories.— 4.66 per gram
132.3 per ounce

Vitamins.—The short heat processing in almost complete absence of air has little deleterious effect on vitamins, excepting vitamin C, of the milk component.

Claims of Manufacturer.—The powder may be readily mixed with cool or hot water to form a fine suspension. The mixture may be boiled without curdling or change of color or taste. It is recommended in infant feeding.

LIBBY'S TOMATO JUICE

Manufacturer.—Libby, McNeill & Libby, Chicago.

Description.—A pasteurized tomato juice, seasoned with salt.

Manufacture.—The tomatoes as received are washed in a continuous stream of fresh water, from which they are conveyed by rotating paddles to a spray washer, following which they pass through a second stream of water to conveyor belts for sorting and trimming. Only thoroughly matured sound red ripe tomatoes are selected for the tomato juice.

The juice is expressed from the preheated, cleaned tomatoes in an atmosphere of water vapor in a continuous press. Practically no air is incorporated in the juice in this operation. The expressed juice passes through a screen, is brought to a definite standard of consistency by removal of the suspended solids, and is pumped to the filling machines under conditions that exclude air in an atmosphere of water vapor. The cans are filled also by a procedure that avoids admixture with air and in a surrounding of water vapor. A definite quantity of table salt is automatically added to each can. The cans are sealed and pasteurized at a definite temperature for a sufficient time to insure the keeping qualities.

Laboratory supervision is maintained to insure the use of tomatoes of a proper grade, color and flavor, to control the viscosity of the final juice, and to supervise the processing.

Chemical Composition.—

(proximate analysis)	
Specific gravity $\frac{68F}{68F}$	1.0308
	per cent
Total solids	6.7
Insoluble solids	0.5
Ash	1.2
Salt (sodium chloride)	0.7
Fat (ether extract)	0.0
Protein (N × 6.25)	1.1
Titratable acidity, as citric acid	0.5
Reducing sugars before inversion, as dextrose	3.8
Reducing sugars after inversion, as dextrose	3.7
Sucrose	0.0
Crude fiber	0.2
Viscosity	30 seconds
(standard 29-31)	

Calories.— 0.20 per gram
5.7 per ounce

Vitamins.—The selection of high quality, matured, vine ripened tomatoes assures the vitamin content of the material used for the preparation of the juice. The construction and operation of the press and other equipment, the replacement of air with steam or water vapor in the atmosphere surrounding the tomatoes and juice during the preparation of the product and the avoidance of admixture of air with the juice at all stages of the process assure maximum retention of the vitamin content of the original juice as is obtainable by modern commercial canning methods.

Claims of Manufacturer.—Libby's Tomato Juice from red ripe tomatoes seasoned with salt is more than a drink; it is a food. It quenches the thirst and stimulates the appetite. This tomato juice is adaptable as an infant food.

It is a good food source of mineral salts, and vitamins A, B and C. Like orange juice, Libby's Tomato Juice is a protective food for babies against scurvy. The final products of metabolism in the body are alkaline and effective for counterbalancing the metabolic acidity of other foods.

SELF RISING WASHINGTON FLOUR

Manufacturer.—Wilkins-Rogers Milling Company, Washington, D. C.

Description.—A mixture of wheat flour with baking powder leavening and seasoning—calcium acid phosphate, sodium bicarbonate and salt.

Manufacture.—The flour, salt and sodium bicarbonate are mixed in a "batch mixer." The calcium acid phosphate is then added and the entire batch remixed. The self-rising mix is emptied into a flour packing machine, from which the self-rising flour is sacked in bags.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	11.9
Ash	3.87
Fat (ether extract)	1.6
Protein (N × 5.7)	8.6
Crude fiber	0.3
Carbohydrates (by difference) other than crude fiber	73.7
Calcium (Ca)	0.27
Phosphorus (P)	0.46

Calories.— 3.44 per gram
97.7 per ounce

Claims of Manufacturer.—Self Rising Washington Flour contains wholesome baking powder leavening and a flour adapted to biscuit, pastry and cake baking. It is rich in calcium and phosphorus, elements essential for bone and growth development.

RADIOLOGIC SERVICE IN THE UNITED STATES

REPORT ON SURVEY OF DEPARTMENTS OF RADIOLOGY AND ROENTGENOLOGY BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

At the meeting of the American Medical Association in Minneapolis in 1928, the House of Delegates received requests from the sections on radiology of several medical societies for supervision of laboratories of radiology and roentgenology, similar to that already established over clinical laboratories. The request was granted and the work was assigned to the Council on Medical Education and Hospitals. The Council immediately appointed a committee of radiologists and roentgenologists to prepare the "Essentials of an Approved Laboratory or Department of Radiology or Roentgenology," and a suitable questionnaire. The members of this committee are Dr. A. U. Desjardins, Rochester, Minn., chairman; Dr. William E. Chamberlain, Philadelphia; Dr. George Grier, Pittsburgh; Dr. Frederick M. Hodges, Richmond, Va.; Dr. Charles L. Martin, Dallas, Texas; Dr. Ralph Pemberton, Philadelphia and Dr. D. B. Phemister, Chicago.

The Council in collaboration with this committee and about fifty other radiologists developed the "Essentials" and questionnaire. The "Essentials" were approved by the House of Delegates at the Portland session, in July, 1929.

The "Essentials" contain definitions of radiology, department of radiology, radiologist, roentgenology, department of roentgenology, roentgenologist, diagnostic roentgenologist, therapeutic roentgenologist and radium specialist.

The requirements on which special emphasis is placed are the qualifications of the director and his personnel. The other requisites also are outlined. A copy of the "Essentials" along with the carefully prepared questionnaire and an explanatory letter were sent to all known radiologists, roentgenologists and other persons entitled to participate in the survey.

The response was exceptionally good; of the original 1,655 questionnaires sent out, 1,245 were returned, and 1,150 of these contained adequate information for tabulation. This number obviously does not include all those who are eligible for classification in one of the groups. The mailing list is constantly being improved and followed up so as to get reports from, and enlist the cooperation of, as large a percentage as possible.

The tabulation of the 1,150 completed questionnaires resulted in some interesting figures, which are given in table 1. The questionnaires also were a valuable aid in the preparation of the list of physicians conducting approved radiologic services.

METHOD OF PREPARING THE LIST

The method of preparing the list of physicians conducting approved radiologic services was as follows:

1. The data submitted on the questionnaires by the specialists were verified by comparison with the biographic files of the American Medical Association. The education of the physician was attested by the official reports of his medical college of graduation and by other institutions from which official reports had been received. The official reports received from state boards certified as to his licensure; his membership in various special societies also was added.

2. The questionnaires were then reviewed in the office of the Council and those that were, by their own statements, clearly outside the scope of the survey, were separated. Those that were within the scope of the survey and that were eligible to be placed on the accepted lists were taken under consideration for the approved list. They were carefully compared, item by item, with the "Essentials." Copies of the lists were then made and sent to the local members of an advisory committee. This advisory body numbers about 198 specialists, who were selected from among those radiologists and roentgenologists that are best qualified to act in an advisory capacity. The 198 were selected from names that were suggested by the officers of the American Roentgen Ray Society and the Radiological Society of North America, as well as names selected by the Council and by the Council's special committee.

3. Advice regarding the eligibility of candidates was obtained from individual local members of the advisory committee and each was asked to submit his opinion or recommendation independently of others, unless for any reason a group consideration was required. Recommendations were secured from three to six advisers regarding each candidate. These were then taken up by the Council on Medical Education and Hospitals at the following quarterly meeting of the Council.

The place of the Council on Medical Education and Hospitals in this work is that of an impartial, fact-finding, classifying body. The Council was assigned this undertaking because of similar assignments which the Council has assumed in a satisfactory manner. The Council is equipped to carry through such undertakings. The expense of this work is borne entirely from funds voted to the Council by the American Medical Association. The only object in view, therefore, is the substantial and gradual betterment of radiologic service in its several phases and the interest of the public which our great profession serves.

The figures have been secured from the most representative group in the specialty and the comparisons and facts brought out by them may be considered as fairly reliable indicators. It is interesting to note that, for every six roentgenograms made, one roentgenoscopic (fluoroscopic) examination is performed, thus emphasizing the importance of roentgenoscopy.

Another interesting fact here is that about one third of all the roentgen therapy performed is of the short wave or so called "deep" therapy type. Incidentally, it might be stated here that "deep" therapy is a misnomer and should be avoided since all irradiation treatment is more or less deep, depending on the quality of the rays used; but even the softest rays pass entirely through the body. This word "deep" has given rise to a great deal of confusion among physicians and surgeons in general. High voltage therapy would be more properly termed short wave therapy.

In comparing the amount of diagnostic work done with the amount of roentgen and radium therapy performed, one will see that for every ten diagnostic procedures carried out there is one roentgen ray or radium treatment given; or, to state the comparison in another

way, approximately 10 per cent of all the work done in the specialty (exclusive of spectral therapy and diathermy) is roentgen and radium therapy.

TABLE 1.—*Amount of Work Done in One Year by Those Answering Original Questionnaire*

State	Number of Roentgenograms	Number of Roentgenoscopies	Therapy: Treatments with Long and Medium Wavelengths	Therapy: Treatments with Short Wavelengths	Radium Treatments	Total Number of Treatments
Alabama	3,294	1,192	104	.....	240	344
Arizona	6,200	2,900	140	105	75	320
Arkansas	6,730	1,796	395	131	419	945
California	307,786	39,972	10,274	7,364	3,174	20,812
Colorado	44,562	4,390	2,852	2,225	198	5,275
Connecticut	35,318	5,060	565	400	1,077	2,042
Delaware	3,540	445	50	.....	15	65
District of Columbia	20,768	2,623	4,416	258	227	4,901
Florida	47,308	6,355	3,955	1,625	728	6,308
Georgia	21,570	5,821	1,179	250	951	2,380
Idaho	908	52	126	34	7	167
Illinois	239,243	56,805	13,757	4,680	6,377	24,814
Indiana	37,313	9,824	8,170	2,659	593	11,422
Iowa	27,011	6,433	2,204	630	755	3,589
Kansas	16,877	2,494	2,685	2,886	1,870	7,441
Kentucky	74,560	11,840	3,926	2,434	2,407	8,767
Louisiana	26,255	6,022	2,654	405	13	3,072
Maine	27,998	8,288	3,080	1,116	2,000	6,196
Maryland	24,052	3,483	232	1,952	6,627	8,811
Massachusetts	159,806	22,247	14,662	1,009	1,588	17,259
Michigan	126,030	40,931	11,151	2,000	998	14,149
Minnesota	287,066	31,076	6,104	3,681	4,089	13,874
Mississippi	6,066	2,750	250	50	100	400
Missouri	143,526	26,259	9,278	4,181	1,906	15,365
Montana	4,700	1,500	325	50	25	400
Nebraska	18,432	4,192	3,688	2,719	827	7,234
Nevada	1,680	.....	.....	.....	...	.....
New Hampshire	4,238	603	1,580	47	225	1,852
New Jersey	89,118	10,853	8,077	3,550	885	12,512
New Mexico	5,000	1,000	500	200	100	800
New York	600,122	87,049	34,790	14,763	8,444	57,997
North Carolina	9,790	2,450	1,615	760	375	2,750
North Dakota	5,100	1,475	880	184	278	1,342
Ohio	157,353	22,051	13,428	6,376	3,053	22,857
Oklahoma	10,417	2,878	270	.....	.....	270
Oregon	19,000	1,225	450	125	75	650
Pennsylvania	303,937	45,375	21,065	5,413	3,230	29,708
Rhode Island	18,109	350	1,580	555	150	2,285
South Carolina	36,003	5,094	2,424	2,649	1,211	6,284
South Dakota	11,258	1,300	539	65	200	804
Tennessee	44,129	7,139	3,944	1,050	220	5,214
Texas	124,050	31,975	16,921	7,045	3,073	27,039
Utah	20,000	2,250	3,500	650	.....	4,150
Vermont	2,675	550	1,260	200	600	2,060
Virginia	45,044	5,825	6,254	1,045	137	7,436
Washington	43,418	10,480	4,040	737	197	4,974
West Virginia	19,678	3,140	2,868	1,565	...	4,433
Wisconsin	64,312	26,297	6,525	712	502	7,739
Wyoming	.....	.....	.....	...	...	.....
Totals	3,351,350	574,109	238,732	90,535	60,241	389,508

Approximately one half of the directors answering the questionnaires had at least one year of special training; one third of them had between two and ten years. About one half did not answer this question.

TABLE 2.—*Training and Experience of Directors*

Training	
One year or less	299
Two to ten years	331
Over ten years	9
Did not answer question	511
Experience	
Five years or less	90
Six to ten years	373
Over ten years	523
Did not answer question	164

About one half of the directors had more than ten years' experience; one third had from six to ten years' and one tenth had less than five years' experience. It is evident that those who were lacking in special training were advanced in experience, since almost 90 per cent had over five years' experience.

ASSISTANTS IN DEPARTMENT

There are 789 directors of this group who have assistants, numbering 1,364, in their departments. In a great many instances physicians are assistants to the director, but more often they are registered technicians and nurses. The training and experience of assistants vary considerably, as do the duties and hours of attendance. There are 361 of the 1,070 who answered this question that have no assistants.

MEMBERSHIP OF DIRECTORS IN AMERICAN MEDICAL ASSOCIATION AND RADIOLOGIC SOCIETIES

Directors numbering 983 out of 1,150 are Fellows of the American Medical Association, and 186 more are members of their local and state societies. Only fifteen, or 1.3 per cent, of the total are nonmembers of organized medicine.

TABLE 3.—*Time Spent by Director in Department or Laboratory* *

100% of their time devoted by	610 physicians
80% to 100% of their time devoted by	23 physicians
60% to 80% of their time devoted by	90 physicians
40% to 60% of their time devoted by	123 physicians
25% to 40% of their time devoted by	99 physicians
Less than 25% of their time devoted by	25 physicians
"Necessary amount"	82 physicians
Did not answer	98 physicians

* The great majority of those answering this question spent all their time in their laboratories. Approximately 85 per cent spend more than half their time in the laboratory. This is significant in that it demonstrates the fact that these men have little or no practice besides their specialty.

The American Roentgen Ray Society has a membership of 381 from this group, and the Radiological Society of North America a membership of 52. Those enjoying membership in both societies number 107.

TABLE 4.—*Training of Technicians*

Special training	100
No special training	969
Employ interns, nurses or students	24
Did not answer	57

Another group of 113 have memberships in other roentgen societies, so that a total of 653 of 1,150 specialists are members of one or more of the societies of their specialty.

DATES WHEN EXISTING DEPARTMENTS OR LABORATORIES WERE ESTABLISHED

Table 5 shows the relative increase of roentgen-ray establishments since 1900. It must be borne in mind that these figures do not represent totals for states but are compiled from 1,150 departments only. There are undoubtedly many more in each state.

SAFETY MEASURES

The requirements with regard to safety measures are based on the recommendation adopted by the International Congress of Radiology, held at Stockholm, Sweden, in July, 1928, and approved by the American Roentgen Ray Society and Radiological Society of North America.

The questionnaire revealed that safety measures are employed by all of those answering this question. Whether or not the protective measures are adequate for both patients and personnel according to those adopted by the International Congress was reported on by the advisers.

EQUIPMENT

The equipment should be sufficient to enable the personnel to carry out efficiently the technical procedures and activities of the department under a proper classification.

TABLE 5.—*Dates When Existing Departments or Laboratories Were Established*

State	Before 1900	1900-1905	1906-1910	1911-1915	1916-1920	1921-1925	1926-1930	Did not Answer
Alabama	..	..	1	..	1	3	..	..
Arizona	..	..	..	1	1	..	..	..
Arkansas	..	1	1	2	3	2	2	1
California	2	3	4	10	19	14	10	6
Colorado	1	..	3	3	3	4	1	3
Connecticut	2	1	1	3	4	2	2	..
Delaware	..	1	1	1	..	..	1	..
District of Columbia	..	2	..	2	1	..	1	1
Florida	..	..	1	2	5	5	7	..
Georgia	1	..	..	3	4	5	3	1
Idaho	..	..	..	..	1	..	..	..
Illinois	5	4	11	10	20	7	9	6
Indiana	3	1	1	6	8	7	2	1
Iowa	..	..	..	3	6	4	2	5
Kansas	1	..	1	4	7	3	2	2
Kentucky	2	2	1	2	6	4	..	2
Louisiana	..	..	3	2	3	2	3	2
Maine	..	1	2	1	2	3	..	1
Maryland	1	2	..	4	5	..	..	2
Massachusetts	3	3	12	7	10	6	6	5
Michigan	3	1	3	10	7	11	8	2
Minnesota	1	2	1	3	8	2	3	2
Mississippi	..	..	..	3	1	1	..	1
Missouri	..	2	2	6	11	9	3	4
Montana	..	1	..	1	1	..	..	1
Nebraska	1	..	2	6	5	2	1	1
Nevada	..	..	..	..	..	1	..	..
New Hampshire	..	..	..	2	1	2	..	1
New Jersey	..	2	3	8	12	7	4	3
New Mexico	..	..	..	1	..	..	..	..
New York	9	10	13	14	40	47	23	15
North Carolina	1	..	1	1	3	1	2	..
North Dakota	..	..	..	2	..	1	1	..
Ohio	..	6	8	13	19	14	3	4
Oklahoma	..	..	..	1	4	2	4	..
Oregon	1	..	1	..	..	3	..	..
Pennsylvania	9	10	8	17	25	20	14	13
Rhode Island	..	2	1	1	..	2	..	..
South Carolina	..	1	3	1	4	2	..	..
South Dakota	..	..	..	1	2	..	1	..
Tennessee	..	2	3	1	5	5	3	1
Texas	..	3	4	7	12	12	7	4
Utah	..	..	..	..	1	1	1	..
Vermont	..	..	2	..	1	1	1	..
Virginia	..	1	..	3	7	2	3	1
Washington	..	1	1	3	5	5	1	..
West Virginia	..	..	2	2	1	2	2	..
Wisconsin	1	4	3	1	5	10	2	2
Wyoming	..	..	..	..	..	..	..	..
Totals	47	69	104	174	289	236	138	93
Increase (totals)		116	220	394	683	919	1,057	1,150

The question on ownership of equipment brought out the interesting fact that more than half the equipment is individually owned and that less than one third is owned by hospitals.

TABLE 6.—*Ownership of Equipment*

Individual ownership	628
Partnership ownership	71
Clinic ownership	45
Hospital ownership	342
Hospital and director	32
Corporation ownership	14
City or county ownership	2
Did not answer	16
Total	1,150

CONTRACTS AND REFERRED WORK

The question "Is contract work done for medical institutions, nonmedical institutions, or physicians?" elicited the information that 998 do not do contract work, 125 do contract work, while 27 did not answer. These figures indicate that approximately 85 per cent of these directors make no contracts for radiologic or roentgenologic services.

Practically all the departments and laboratories do referred work for other physicians, which is, of course, one of their primary functions: 1,064 do referred work, 58 do no referred work, and 28 did not answer.

MEDICAL PRACTICE

Does the director conduct a medical practice of his own? It was learned that 408 directors conduct a medical practice, 705 directors do not conduct medical practice, and 37 did not answer.

IDENTIFICATION OF ROENTGENOGRAMS

From table 7 it is evident that roentgenograms are well marked for identification and filing.

TABLE 7.—*Identification of Roentgenograms*

Identification by number	406
Identification by name	55
Identification by label	43
Identification by name and number	143
Identification by number and date	86
Identification by number and label	53
Identification by number and letter	52
Identification by name and date	49
Identification by name, number and date	98
Not designated (answered yes)	98
No identification	3
No answer	64

SUPERVISION

Is the diagnostic and therapeutic work supervised by the director? The replies are given in table 8.

TABLE 8.—*Supervision of Diagnostic and Therapeutic Work by Director*

Diagnostic	
Answered yes	958
Answered no	8
Did not answer	184
Therapeutic	
Answered yes	848
Answered no	41
Did not answer	261

It may be concluded that practically all the work done is under the direct supervision of the director.

One thousand and fifty-three stated that all reports of roentgenologic diagnosis are made through the director. In only fifty-three instances are the reports made by other than the director. It may be assumed that in those cases the reports are made by medical assistants and probably none by technicians.

Roentgenograms are filed in the department as part of the patient's record in more than 90 per cent of the cases.

TABLE 9.—*Radiologic Libraries*

Have special libraries	994
Have no libraries	30
Did not answer	126
Volumes in 994 libraries	33,463
Average number of volumes	34
Special journals received for these libraries	2,365
Average number of journals	2.3
Received no journals	67
Did not answer	110

RADIOLOGIC LIBRARIES

The question on radiologic libraries brought the response given in table 9.

PUBLICITY

Advertising in medical journals and publicity directed to the profession, such as cards, constitute the only publicity carried out in the entire group (table 10).

TABLE 10.—*Publicity*

No advertising	961
Advertising to profession	139
No answer	50

RESEARCH WORK AND PAPERS PUBLISHED

The inquiries regarding investigative work and the publication of original articles brought the response given in table 11. The figures indicate that approximately 14 per cent of the directors are engaged in research problems and that about 25 per cent of them have written papers on radiologic subjects which have been accepted for publication.

TABLE 11.—*Research Work and Papers Published*

Research	
Directors engaged in research	158
Directors not engaged in research	433
No answer	559
Publications	
Directors who have papers published	292
Directors who have no papers published	513
Directors who did not answer	345

COOPERATION NECESSARY

Radiology is established as a specialty. Its integrity as such should be maintained. Physicians in all departments of medicine now depend upon it for diagnosis and treatment. This was not true a few years ago. The radiologist should be considered a consultant as is the clinical pathologist.

Cooperation by members of the regular profession will help to maintain the dignity and standing of radiology as a specialty. Not a few physicians send their patients to lay laboratories to have some "pictures" taken. This work is not in the best interests of the patient. It is rare indeed that a lay radiologist or roentgenologist has the proper training in anatomy, physiology, and other basic subjects to offer the physician scientific consultation. The fact that a certain number of physicians patronize these pseudo-scientists has opened the "back door" of this more or less infant specialty so that many lay persons have crept through and are attempting to convert a medical specialty into a "trade."

It will be noted that in the following tentative lists the emphasis has been placed on the director of a department or service and not on the commercial name of a laboratory. Each candidate was judged by other specialists in radiology.

The list of pathologists conducting approved clinical laboratories was made in practically the same manner; the first list was published April 3, 1926 and is being enlarged from time to time. The list has proved to be of inestimable value for the guidance of physicians in referring their work to properly qualified individuals. There can be no doubt that lists of physicians conducting approved radiologic and roentgenologic services will serve as equally important guides to physicians and as a safeguard to patients.

County and city medical societies and hospital staffs can do much by supporting only medical men qualified in this field. Physicians should acquaint themselves with those specialists in radiology and roentgenology in their area and consult and cooperate with them to the end that the untrained and lay "specialists" will tend to become extinct and the maximum benefit to the patient derived from this specialty be realized.

ACKNOWLEDGMENT

The Council appreciates the splendid cooperation of the men in roentgenology and radiology who have made this survey possible. It is especially grateful to those men who serve as the advisory committee in the various sections. These men have lent their efforts and time cheerfully to the Council to obtain first hand information concerning applicants for listing. This is a permanent committee.

The Council will maintain these lists as an active part of the work. Additions and revisions will be made from time to time; suggestions for changes and consideration of new applications will go on continuously. Cooperation by the men in the specialty has been excellent and must continue in order that the work may be of optimum value.

ESSENTIALS OF AN APPROVED DEPARTMENT OF RADIOLOGY OR ROENTGENOLOGY

1. DEFINITIONS

Radiology.—The branch of medicine which deals with the diagnostic and therapeutic application of radiant energy, including roentgen rays, radium, ultraviolet rays and other spectral radiation.

Department of Radiology.—The department of a hospital, clinic or other institution, organized and equipped for the diagnostic and therapeutic application of radiant energy, including roentgen rays, radium, ultraviolet rays and other spectral radiations.

Radiologist.—A qualified physician who also has obtained adequate special training and experience in general radiology.

Roentgenology.—The phase of radiology which deals with the diagnostic and therapeutic application of roentgen rays only.

Department of Roentgenology.—The department of a hospital, clinic or other institution organized and equipped for the diagnostic and therapeutic application of roentgen rays only. A department organized and equipped solely for the diagnostic or therapeutic application of roentgen rays shall be known as a department of diagnostic or therapeutic roentgenology, respectively.

Roentgenologist.—A qualified physician who has had adequate training and experience in the diagnostic and therapeutic application of roentgen rays.

Diagnostic Roentgenologist.—A roentgenologist who limits his practice to the diagnostic phase of roentgenology.

Therapeutic Roentgenologist.—A roentgenologist who limits his practice to the therapeutic phase of roentgenology.

Radium Specialist.—A radiologist who specializes in the therapeutic use of radium.

Private Radiologic Laboratories.—The principles herein which refer to a hospital department of radiology should be construed as applying with equal force to a private laboratory of radiology.

2. PERSONNEL

(*a*) *Director.*—The director shall be a graduate of a medical school that is approved by the Council on Medical Education and Hospitals and shall be licensed to practice medicine in the state in which his department is located. He shall also have had special training, such as is approved by the Council, in radiology or roentgenology at an acceptable school—preceptorship, hospital

or clinic, department of radiology or roentgenology—for a period of at least three years, or, in lieu of such training, shall have had a minimum of five years' experience in the exclusive practice of radiology or roentgenology. He must be a man of good standing in the medical profession, and particularly among those specializing in radiology. The director shall either be on a full-time basis or have definite hours of attendance at the department, such hours to be ample to insure the element of medical consultation in every examination or treatment.

The director shall have complete charge of the department, with responsibility for all examinations and treatments. He shall also be responsible for the employment of all professional assistants, and for the efficient maintenance of the department.

(*b*) *Assistants.*—The director may have a corps of qualified medical and technical assistants responsible to him, and for whom he is responsible, to carry out accurately the various functions of the department.

3. Scope

A department of radiology should be able to render all of the following services:

(*a*) Roentgenography, simple or stereoscopic, of any part of the body, with medical interpretation of the roentgenographic observations, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

(*b*) Roentgenoscopy of any part of the body, in any position, with or without opaque mediums, with medical interpretation of the roentgenoscopic observations, and under satisfactory conditions for the protection of the patient and the professional and technical personnel.

(*c*) Roentgenotherapy of all benign and malignant diseases amenable to such treatment with roentgen rays generated at low, moderate or high voltage (long, medium or short wavelength), as the conditions may require, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

(*d*) Radium therapy of all benign and malignant diseases amenable to such treatment with an adequate quantity of radium element or emanation, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

Ultraviolet therapy, general or local, with satisfactory air-cooled and water-cooled quartz mercury lamps or carbon arc lamps, with suitable quartz and other applicators for irradiation of cavities, sinuses, or the superficial lesions under pressure, and under satisfactory conditions for the protection of the patient and of the professional or technical personnel. This stipulation is not mandatory, but the Council recommends that every department of radiology be equipped for ultraviolet therapy or that the ultraviolet equipment of hospitals be placed in the department of radiology. Ultraviolet treatment by the department of physical therapy shall not be countenanced unless such department is under the control and supervision of a medical director who has specialized in radiology.

A department of roentgenology should be able to render the services specified under *a*, *b* and *c*.

A department of diagnostic roentgenology should be able to render the services specified under *a* and *b*.

A department of therapeutic roentgenology should be able to render the services specified under *c*.

A department of radium therapy should be able to render the services specified in *d*.

4. Housing

The housing should be adequate for the proper functioning of the department of radiology or roentgenology. Damp or ill ventilated quarters are unsuitable for such work.

5. Equipment

The equipment should be sufficient to carry out properly the technical procedures and activities of the department of radiology or roentgenology.

6. Protection

The arrangement of working rooms and conditions, and the construction of all apparatus shall be such as to provide adequate protection, both from electrical shock and from avoidable exposure to roentgen rays or radium, to patients, attendants and other persons in or near the department. The requirements in this respect are based on the recommendations adopted by the International Congress of Radiology, held at Stockholm, Sweden, in July, 1928, and approved by the American Roentgen Ray Society and the Radiological Society of North America.

7. Records

Full records of all examinations and treatments made by the department, suitably indexed, are essential. Roentgenograms made in the department should have inerasible identification marks which will preclude error as to patients concerned. Roentgenograms may be lent to referring physicians but should be returned to the laboratory for filing and future reference. Suitable storage facilities should be provided where roentgenograms and other records will be both safe and readily available for reference. They shall be kept as long as there is the possibility of their being needed for the benefit of the patients or their physicians.

As roentgenography constitutes only a kind of medical examination, on which the roentgenologist's opinion of the patient's condition is partly or wholly based, and as the opinion of the specialist is the essential factor, the Council holds that the introduction of roentgenograms as evidence in medicolegal cases should be discouraged as immaterial and as tending to adulterate the process of justice. There is no more reason for the introduction of roentgenograms than for requiring a pathologist to bring to court his microscope and his sections of tissues.

8. Reports

The reports of an approved department of radiology or roentgenology shall be made through the director on stationery or blanks having the name of the director printed thereon. Under no circumstances shall roentgenologic diagnoses, interpretations, opinions, statements of prognosis, or therapeutic suggestions be offered by the nonmedical personnel.

9. Library

The department of radiology and roentgenology should be provided with, or have convenient access to, a library including current scientific books and journals on all the various subjects required in its work.

10. Ethics, Fees and Publicity

Radiology is a special type of medical practice, and the physician practicing radiology is subject to the same rules of special training and conduct that govern his fellow specialists in the practice of medicine and surgery. The Principles of Medical Ethics of the American Medical Association shall apply in all cases. The fees charged for radiologic services shall be under the control of the director of the department. All systems of rebates, discounts, special group rates, etc., shall be considered unethical, except that, where the patient's economic status is the determining factor, the radiologist, like his fellow physician in medicine or surgery, may waive part or all of the fee.

The publicity of an approved department of radiology or roentgenology should be in professional good taste and limited to statements of fact as to name, address and telephone number; names and titles of the director and other active responsible personnel; field of work covered, office hours, directions for referring patients, and so forth. It should not contain misleading statements or claims of unusual superiority. It should not advocate medical fads nor lay undue stress on the importance of roentgenologic observations. On the letter heads or any other form of publicity, only the names of those rendering regular services to the department should appear as being connected with the department. Advertising matter should be directed only to physicians, either through bulletins or through recognized technical journals, and never to the nonprofessional public, as, for example, by announcements in popular journals and periodicals, circulars, pamphlets or telephone lists.

11. Admission to the Approved List

Only those departments of radiology or roentgenology in which the personnel, space, equipment, management, finances and records are such as will insure honest, efficient and accurate work may expect to be listed as approved. Any department of radiology or roentgenology desiring to be placed on the approved list should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago.

TENTATIVE LIST OF PHYSICIANS CONDUCTING APPROVED LABORATORIES OR DEPARTMENTS OF RADIOLOGY OR ROENTGENOLOGY

The list contains the names of only those who responded to the questionnaire, who have been found to comply with the "Essentials of an Approved Department of Radiology or Roentgenology" and who were recommended by the advisers for their respective states.

The type of service rendered is given opposite the name. The asterisk (*) indicates that short wave therapy, also known as "deep therapy," is included in the service. The addresses correspond with those in the twelfth edition of the American Medical Directory.

It is hoped that any errors that appear will be pointed out promptly in order that corrections may be made.

ALABAMA

NAME	ADDRESS	TYPE OF SERVICE
Anniston		
Levi, Irwin P.	931 Noble St.	Roentgenology
Birmingham		
Barfied-Carter, M.	2031, 1st Ave., N.	Roentgenology
Edmonson, John H.	1928, 1st Ave. N.	Roentgenology
Kesmodel, Karl F.	1928, 1st Ave., N.	Roentgenology
Meadows, James A.	1928, 1st Ave., N.	Roentgenology
Dothan		
Ellis, John T.	200 E. Main St.	Roentgenology

ARIZONA

NAME	ADDRESS	TYPE OF SERVICE
Phoenix		
Goss, H. L.	125 W. Monroe St.	Roentgenology
Watkins, W. W.	12 N. Central Ave.	General radiology

ARKANSAS

NAME	ADDRESS	TYPE OF SERVICE
Fort Smith		
Brooksher, W. R.	602 Garrison Ave.	General radiology
Hot Springs		
Nims, Chas. H.	236 Central Ave.	General radiology
Little Rock		
Rhinehart, B. A.	701 Main St.	Roentgenology
Rhinehart, D. A.	701 Main St.	Roentgenology
Zell, A. M.	2000 Main St.	General radiology
Monticello		
Wilson, J. S.		General radiology

CALIFORNIA

NAME	ADDRESS	TYPE OF SERVICE
Alameda		
Lum, Wm. T.	1361 Park St.	Roentgenology *
Bakersfield		
Fox, L. H.	2025, 18th St.	Roentgenology
Berkeley		
Heald, E. Schulze	3000 Regent St.	Roentgenology
Van Nuys, R. G.	2490 Channing Way	General radiology
Fresno		
Broemser, Milton A.	2014 Tulare St.	General radiology
Milholland, W. G.	1015 Fulton St.	Roentgenology
Ruff, Frank R.	Burnett Sanitarium	General radiology
Glendale		
McKee, Edward N.	229 N. Central Ave.	Roentgenology
Hollywood		
Sherman, B. H.	6777 Hollywood Blvd.	Roentgenology
Stewart, Chas. W.	1680 N. Vine St.	Roentgenology
Warren, J. W.	1322 N. Vermont Ave.	General radiology
Livermore		
Beaudet, E. A.	U. S. Veterans' Hospital	Diagnostic roent.
Long Beach		
Heylmun, H. H.	115 Pine Ave.	Diagnostic roent.
Mayfield, C.	115 Pine Ave.	Diagnostic roent.
Los Angeles		
Blaine, Edward S.	727 W. 7th St.	Roentgenology
Bonoff, Karl M.	1930 Wilshire Blvd.	Roentgenology
Costolow, Wm. E.	1407 S. Hope St.	Roentgen therapy Radium therapy
Davis, Kenneth S.	St. Vincent's Hospital	Roentgenology *
Goin, Lowell S.	1930 Wilshire Blvd.	Roentgenology
Karshner, Rolla C.	510 S. Lucas Ave.	Roentgenology
Kibby, Sydney V.	417 S. Hill St.	Roentgenology
Martin, A. T.	269 S. Mariposa St.	General radiology
Pindell, Merl Le.	678 S. Ferris Ave.	Diagnostic roent.
Soiland, Albert	1407 S. Hope St.	Roentgen therapy Radium therapy
Stafford, Owen R.	520 West 7th St.	Roentgenology
Taylor, Raymond G.	1212 Shatto St.	General radiology
Witter, Calvin B.	511 S. Bonnie Brae St.	Roentgenology *
Mare Island		
Pinner, Wm. Ellis	U. S. Naval Hospital	Roentgenology
Oakland		
Bissell, F. S.	434, 30th St.	Roentgenology
Bowen, Carl B.	1624 Franklin St.	Roentgenology
Peters, Chas. E.	400, 29th St.	Roentgenology *
Sargent, Wm. H.	1624 Franklin St.	Roentgenology *
Siefert, Alfred C.	Samuel Merritt Hospital	General radiology
Palo Alto		
Powers, Robert A.	Medico-Dental Bldg.	Roentgenology
Pasadena		
Parker, Carl H.	65 N. Madison Ave.	Roentgenology *
Pomona		
Swearingen, F. C.	305 W. 2d St.	General radiology
Redlands		
Folkins, F. H.	47 E. Vine St.	Roentgenology
Riverside		
Thuresson, Paul F.	3770, 12th St.	Diagnostic roent.
Sacramento		
Cook, Orrin S.	1127, 11th St.	Roentgenology
Zimmerman, Harold	1027, 10th St.	General radiology
San Bernardino		
Owen, C. C.	398, 6th St.	Roentgenology *
San Diego		
Elliott, A. E.	1831, 4th St.	General radiology
Kinney, L. C.	1831, 4th St.	General radiology
Weiskotten, W. O.	233 A St.	Diagnostic roent.
San Francisco		
Bryan, Lloyd	450 Sutter St.	Roentgenology *
Crow, Lloyd B.	1400 Fell St.	Roentgenology *
Fulmer, Chas. C.	St. Luke's Hospital	Roentgenology
Garland, Leo H.	450 Sutter St.	Roentgenology *
Hunsberger, H. S.	450 Sutter St.	Diagnostic roent.
Ingber, I. S.	490 Post St.	General radiology
Newell, Robert R.	2361 Clay St.	General radiology
Rodenbaugh, F. H.	490 Post St.	General radiology
Ruggles, Howard E.	384 Post St.	Roentgenology
Stone, Robert S.	University of Calif. Hosp.	Roentgenology
Williams, Francis	870 Market St.	General radiology
San Jose		
Richards, Charles M.	241 E. Santa Clara St.	Roentgenology *
San Pedro		
Allen, Albert	410 W. 6th St.	Diagnostic roent.
Santa Barbara		
Geyman, M. J.	1520 Chapala St.	General radiology
Ullmann, H. J.	1520 Chapala St.	General radiology
Ware, James G.	1513 State St.	Roentgenology *
Santa Monica		
Hopkirk, C. C.	710 Wilshire Blvd.	Diagnostic roent.
Stockton		
Sheldon, F. B.	242 N. Sutter St.	General radiology
Woodland		
Lawson, John D.		General radiology

COLORADO

NAME	ADDRESS	TYPE OF SERVICE
Boulder		
Jones, L. L.	Boulder-Colo. Sanitarium	Roentgenology *
Colorado Springs		
Brown, L. G.	707 N. Cascade Ave.	General radiology
Denver		
Allen, K. D.	227, 16th St.	Roentgenology *
Brandenburg, H. P.	227, 16th St.	General radiology
Childs, S. B.	227, 16th St.	General radiology
Conyers, Chester A.	209, 16th St.	General radiology
Crosby, L. G.	227, 16th St.	General radiology
Diemer, Frederick E.	1612 Tremont St.	Diagnostic roent.
Newcomer, Elizabeth	209, 16th St.	General radiology
Newcomer, N. B.	1616 Tremont St.	General radiology
Stephenson, F. B.	227, 16th St.	Roentgenology *
Wasson, W. W.	227, 16th St.	General radiology
Withers, Sanford	1612 Tremont St.	Roentgenology Radium therapy
Longmont		
Matlack, J. A.		Diagnostic roent.
Sterling		
Daniel, J. H.		Roentgenology
Woodmen		
Forney, F. A.		Diagnostic roent.

CONNECTICUT

NAME	ADDRESS	TYPE OF SERVICE
Bridgeport		
Groark, Owen J.	881 Lafayette St.	Diagnostic roent.
LaField, W. A.	144 Golden Hill St.	General radiology
Parmelee, B. M.	144 Golden Hill St.	General radiology
Hartford		
Heublein, Arthur C.	179 Allyn St.	General radiology
Hoffman, Charles C.	700 Main St.	Diagnostic roent.
Ogden, Ralph T.	179 Allyn St.	General radiology
Roberts, Douglas J.	179 Allyn St.	General radiology
Van Strander, W. H.	179 Church St.	Diagnostic roent.
Meriden		
Otis, Fessendon N.	165 W. Main St.	Roentgenology
Middletown		
Murphy, James	101 Broad St.	Diagnostic roent.
New Britain		
Grant, Arthur S.	55 W. Main St.	Roentgenology
New Haven		
Bergman, A. P.	27 Elm St.	Diagnostic roent.
Scott, Clifton R.	215 Whitney Ave.	Roentgenology
Wheatley, Louis F.	420 Temple St.	General radiology

NAME	ADDRESS	TYPE OF SERVICE
Willimantic		
Kinney, Kenneth K...	29 North St.....	Roentgenology
DELAWARE		
Wilmington		
Allen, B. M.....	909 Washington St.....	Diagnostic roent.
Burns, Ira.....	601 Delaware Ave.....	Diagnostic roent.
McElfatrick, G. C....	1024 W. 8th St.....	Diagnostic roent.
DISTRICT OF COLUMBIA		
Washington		
Caylor, C. C.....	Providence Hospital and 1029 Vermont Ave., N.W.	Diagnostic roent.
Christie, A. C.....	1835 I St., N.W.....	General radiology
Coe, Fred O.....	1835 I St., N.W.....	General radiology
Elward, Joseph F.....	1800 I St., N.W.....	Roentgenology
Groover, T. A.....	1835 I St., N.W.....	General radiology
Lattman, Isidore.....	1835 I St., N.W.....	General radiology
McPeak, Edgar M....	1835 I St., N.W.....	General radiology
Merritt, E. A.....	1835 I St., N.W.....	General radiology
Moore, A. B.....	1835 I St., N.W.....	General radiology
Otell, L. S.....	1835 I St., N.W.....	General radiology
Spalding, Otis B.....	U. S. Naval Hospital.....	Roentgenology *
FLORIDA		
Clearwater		
Brown, Harold O.....	.....	Diagnostic roent.
Fort Lauderdale		
Hendricks, E. M.....	Sweet Bldg.....	General radiology
Jacksonville		
Cunningham, L. W....	117 W. Duval St.....	Roentgenology *
McEuen, H. B.....	126 W. Adams St.....	Roentgenology
Shaw, McL. W.....	117 W. Duval St.....	Roentgenology
Lake City		
Carrington, T.....	U. S. Veterans' Hospital...	Diagnostic roent.
Lakeland		
Weed, Walter A.....	Morrell Memorial Hospital.	Roentgenology Radium therapy
Miami		
Cleghorn, Charles D..	168 S.E. 1st Ave.....	Roentgenology Radium therapy
Lucinian, Joseph H...	168 S.E. 1st Ave.....	Roentgenology *
Raap, Gerard.....	168 S.E. 1st Ave.....	Diagnostic roent. Radium therapy
Ocala		
Moore, J. N.....	Monroe Memorial Hospital.	Diagnostic roent.
Orlando		
Pines, John A.....	Orlando Clinic.....	Roentgenology *
Pensacola		
Hoffman, James M....	21½ E. Wright St.....	Roentgenology Radium therapy
St. Petersburg		
Feaster, O. O.....	103, 5th St., S.....	Roentgenology Radium therapy
Herring, John A.....	350, 3d Ave. N.....	Diagnostic roent.
Sanford		
Marshall, C. J.....	212 E. 1st St.....	General radiology
Tampa		
Allen, Bundy.....	706 Franklin St.....	Roentgenology *
Dickinson, J. C.....	706 Franklin St.....	Roentgenology *
West Palm Beach		
Herpel, Fredk. K.....	Good Samaritan Hospital..	Diagnostic roent.
GEORGIA		
Americus		
Pendergrass, R. C....	.....	Diagnostic roent.
Atlanta		
Clark, James J.....	478 Peachtree St., N. E....	Roentgenology
Hall, O. D.....	106 Linden St., N. E.....	Radium therapy
Lake, Wm. F.....	384 Peachtree St., N. E...	Roentgenology *
Landham, J. W.....	139 Forrest Ave., N. E....	Roentgenology Radium therapy
Rayle, Albert A.....	Steiner Cancer Clinic.....	Roentgenology
Stewart, Calvin B....	Steiner Cancer Clinic.....	Radium therapy
Augusta		
Holmes, L. P.....	753 Broad St.....	Roentgenology
Savannah		
Cole, Wm. A.....	20 E. Taylor St.....	Roentgenology
Corson, Eugene R....	10 W. Jones St.....	Roentgenology *
Drane, Robert.....	Liberty and Drayton Sts...	Roentgenology Radium therapy
McGee, H. H.....	14 E. Taylor St.....	Roentgenology
IDAHO		
Lewiston		
Johnson, Paul W.....	.....	Roentgenology *
ILLINOIS		
Batavia		
Mostrom, H. T.....	.....	Diagnostic roent. Radium therapy
Belvidere		
Alguire, Alden.....	.....	Diagnostic roent.
Bloomington		
Cantrell, Thomas....	310 E. Jefferson St.....	General radiology
Grote, Henry W.....	219 N. Main St.....	General radiology
Chicago		
Arens, Robt. A.....	2839 Ellis Ave.....	General radiology
Bellin, David S.....	411 Garfield Ave.....	General radiology
Blackmarr, Frank H..	25 E. Washington St.....	Roentgen therapy Radium therapy
Brams, Julius	180 N. Michigan Ave.....	Roentgenology
Brown, Wm. L.....	55 E. Washington St.....	Radium therapy
Challenger, C. J.....	3117 Logan Blvd.....	Roentgenology
Culpepper, Wm. L....	1305 E. 63d St.....	Roentgenology
Cushway, B. C.....	7752 S. Halsted St.....	General radiology
Cutrera, Peter.....	501 N. Halsted St.....	Diagnostic roent.
Damiani, Joseph.....	767 Milwaukee Ave.....	Roentgenology
Davis, H. E.....	2548 Lake View Ave.....	Diagnostic roent.
Dick, Paul G.....	55 E. Washington St.....	Roentgenology
Ford, Charles.....	8017 Luella Ave.....	Roentgenology
Gilmore, Wilbur H....	185 N. Wabash Ave.....	Diagnostic roent.
Hartung, Adolph.....	25 E. Washington St.....	General radiology
Hodges, Paul C.....	928 E. 59th St.....	General radiology
Hubeny, M. J.....	25 E. Washington St.....	Roentgenology
Jenkinson, E. L.....	1439 S. Michigan Blvd.....	General radiology
Landau, George M....	660 Groveland Park.....	Roentgenology
Larkin, A. James....	25 E. Washington St.....	Radium therapy
Litschgi, Joseph J....	551 Grant Pl.....	Roentgenology
Maier, Roe J.....	7752 S. Halsted St.....	General radiology
McClure, C. F.....	25 E. Washington St.....	Roentgenology
Olin, Harry.....	6058 Drexel Blvd.....	Roentgenology
Orndoff, B. H.....	2561 N. Clark St.....	Roentgenology
Potter, Hoilis E.....	122 S. Michigan Ave.....	Roentgenology
Rose, Cassie Belle....	1753 W. Congress St.....	General radiology
Royer, Don J.....	841 E. 63d St.....	Roentgenology
Tichy, L. S.....	3200 W. 22d St.....	Roentgenology
Trostler, I. S.....	25 E. Washington St.....	General radiology
Wanninger, W. J.....	9116 Exchange Ave.....	Roentgenology
Warden, R. H.....	1044 N. Francisco Ave.....	General radiology
Warfield, C. H.....	Cook County Hospital.....	Roentgenology
Willy, R. G.....	2749 W. Foster Ave.....	Roentgenology
Danville		
Allison, Otis Wood...	9 W. Main St.....	Radium therapy
Dunham, L. H.....	139 N. Vermilion St.....	General radiology
Deerfield		
Davis, Charles J.....	.....	Roentgenology
Evanston		
Conley, Bernard M...	St. Francis Hospital.....	Roentgenology
Perry, Gentz.....	636 Church St.....	General radiology
Highland Park		
Jacks, R. R.....	16 N. Sheridan Rd.....	Diagnostic roent.
Jacksonville		
Chapin, Henry A.....	316 W. State St.....	General radiology
Joliet		
Houston, Alfred M...	201 N. Chicago St.....	Roentgenology
Mattoon		
Morgan, Chas. E.....	213 S. 17th St.....	Roentgenology
Mount Carmel		
Elkins, Harold A.....	.....	Roentgenology
Mount Vernon		
Smith, Elmer M.....	1001½ Broadway.....	Roentgenology
Oak Park		
Ronayne, Frank J....	West Suburban Hospital...	General radiology
Olney		
Weber, James A.....	.....	Diagnostic roent. Radium therapy
Ottawa		
Pettit, Roswell T.....	Illinois Valley Hospital....	Diagnostic roent.
Peoria		
Goodwin, P. B.....	530 N. Glen Oak Ave.....	General radiology
Magee, H. B.....	408 Main St.....	General radiology
Quincy		
Beirne, H. P.....	648 Hampshire St.....	General radiology
Swanberg, Harold....	506 Maine St.....	General radiology
Rockford		
Ackemann, H. W.....	321 W. State St.....	General radiology
Springfield		
O'Hara, F. S.....	310½ S. 5th St.....	General radiology
INDIANA		
Crawfordsville		
Sigmond, H. W.....	227 E. Main St.....	General radiology
Evansville		
Cleveland, W. R.....	22 N. W. 4th St.....	General radiology
Meyer, Keith T.....	Protestant Deaconess Hosp.	Diagnostic roent.
Fort Wayne		
Rodriguez, Juan.....	2902 Fairfield Ave.....	General radiology
Steele, M. F.....	Methodist Episcopal Hosp.	Diagnostic roent.
Truelove, A. O.....	347 W. Berry St.....	General radiology
Van Buskirk, E. M...	347 W. Berry St.....	General radiology
Gary		
Dietrich, Paul H.....	St. Mary's Mercy Hospital.	Roentgenology
Indianapolis		
Beeler, R. C.....	23 E. Ohio St.....	General radiology
Collins, J. N.....	23 E. Ohio St.....	General radiology
Echternacht, A. C....	Methodist Episcopal Hosp.	General radiology
Lochry, R. L.....	St. Vincent's Hospital.....	Roentgenology
Smith, L. A.....	23 E. Ohio St.....	General radiology
Stayton, Chester A...	23 E. Ohio St.....	Roentgenology *
Kokomo		
Ferry, Paul W.....	224 N. Main St.....	Diagnostic roent.
LaFayette		
McClelland, D. C.....	308 N. 8th St.....	Roentgenology *
Michigan City		
Martin, F. V.....	501 Pine St.....	General radiology
Muncie		
Moore, P. D.....	Jackson and High Sts.....	General radiology
New Castle		
Iterman, Geo. E.....	1319 Church St.....	Roentgenology
Plymouth		
Knott, Harry.....	.....	Roentgenology
Shelbyville		
Inlow, Herbert H....	2 W. Washington St.....	Diagnostic roent.
Union City		
Reid, Robert W.....	.....	Roentgenology
Valparaiso		
DeWitt, C. H.....	.....	Diagnostic roent.
Vincennes		
Moore, Robert G.....	21 N. 3d St.....	Roentgenology

IOWA

NAME	ADDRESS	TYPE OF SERVICE
Anamosa		
Rawson, E. G.		Diagnostic roent.
Atlantic		
Greenleaf, W. S.		Roentgenology
Belle Plaine		
Newland, Don H.		Diagnostic roent.
Cedar Rapids		
Erskine, Arthur W.	120, 3d Ave. S.E.	General radiology
Des Moines		
Burcham, Thos. A.	410, 6th Ave.	General radiology
Dubuque		
Johnston, Wayne A.	1200 Main St.	General radiology
Eagle Grove		
Christensen, John R.		Roentgenology
Independence		
Shellito, J. C.		Roentgenology
Iowa City		
Kerr, H. Dabney	University Hospitals	General radiology
LeMars		
Larsen, W. W.		Roentgenology *
Marshalltown		
Talley, Louis F.	Evangelical Deaconess Home and Hospital	Roentgenology
New Hampton		
Chandler, Orville B.		Diagnostic roent.
Ottumwa		
Herrick, John F.	103 S. Market St.	General radiology
Spilman, H. A.	103 S. Market St.	Diagnostic roent.
Sioux City		
Bellaire, R. F.	423, 6th St.	General radiology

KANSAS

Eldorado		
Dinsmore, W. S.	324 W. Central St.	Diagnostic roent.
Ellsworth		
Hissem, H. Z.		Diagnostic roent.
Eureka		
Moore, R. W.		Roentgenology
Fort Scott		
Prichard, J. R.	209 S. Main St.	General radiology
Kansas City		
Allen, Lewis G.	601 Minnesota Ave.	General radiology
Lawrence		
Jones, H. T.	107 E. 8th St.	Diagnostic roent.
Newton		
Abbey, Frank L.	209 E. Broadway	Diagnostic roent.
Salina		
Brittain, O. R.	105 S. 7th St.	Roentgenology
Topeka		
Finney, Guy A.	901 Kansas Ave.	Roentgenology
Floersch, M. A.	623 Kansas Ave.	Roentgenology
Owen, Arthur K.	901 Kansas Ave.	Roentgenology
Wichita		
Frost, E. J.	227 E. Douglas Ave.	General radiology
Shewalter, G. M.	107 W. Douglas Ave.	Roentgenology
Swope, Opie W.	105 N. Main St.	General radiology

KENTUCKY

Lexington		
Harding, Donnan B.	190 N. Upper St.	General radiology
Louisville		
Bell, J. C.	412 W. Chestnut St.	General radiology
Enfield, Chas. D.	412 W. Chestnut St.	General radiology
Fugate, I. T.	412 W. Chestnut St.	General radiology
Herrmann, Henry C.	608 S. 4th Ave.	General radiology
Johnson, S. E.	101 W. Chestnut St.	Roentgenology
Keith, D. Y.	412 W. Chestnut St.	General radiology
Keith, J. P.	412 W. Chestnut St.	General radiology
Owensboro		
Gillim, P. D.	415 St. Ann St.	Roentgenology
Winchester		
Browne, I. H.		Diagnostic roent.

LOUISIANA

Alexandria		
Barker, H. O.	327, 3d St.	Roentgenology
Houma		
St. Martin, T. I.		Roentgenology
Mansfield		
Curtis, H. P. D.		Roentgenology
Monroe		
Moore, Daniel M.	128 De Siard St.	Roentgenology
New Orleans		
Bowie, E. R.	3503 Prytania St.	General radiology
Fortier, L. A.	2000 Tulane Ave.	General radiology
Gately, T. T.	2000 Tulane Ave.	General radiology
Granger, Amedee	921 Canal St.	Roentgenology
Henderson, W. F.	3500 Prytania St.	General radiology
Menville, L. J.	921 Canal St.	General radiology
Samuel, E. C.	3503 Prytania St.	General radiology
Shreveport		
Barrow, S. C.	624 Travis St.	General radiology
Edwards, H. G. F.	624 Travis St.	Roentgenology
Harwell, W. R.	624 Travis St.	General radiology
Rutledge, C. P.	1030 Highland Ave.	General radiology

MAINE

Auburn		
Cunningham, C. H.	66 Goff St.	Diagnostic roent.
Bangor		
Ames, Forrest B.	489 State St.	Roentgenology
Hunt, Barbara	224 State St.	General radiology
Portland		
Cummings, Edson S.	12 Pine St.	Diagnostic roent.
Lamb, Frank W.	131 State St.	Diagnostic roent.
Thaxter, Langdon T.	2 Arsenal St.	Roentgenology
Waterville		
Goodrich, John P.	214 Main St.	Diagnostic roent.

MARYLAND

Baltimore		
Ashbury, Howard E.	101 Read St.	Roentgenology *
Baetjer, Fredk. H.	4 E. Madison St.	Roentgenology
Burnam, Curtis F.	1418 Eutaw Pl.	General radiology
Cotton, Albertus	101 E. Preston St.	Roentgenology
Evans, John	101 Read St.	Roentgenology
Feldman, Maurice	2425 Eutaw Place	Diagnostic roent.
Kahn, Max	904 N. Charles St.	Roentgenology *
Ostro, Marcus	1810 Eutaw Place	Roentgenology
Pierson, J. W.	1107 St. Paul St.	Roentgenology *
Rogers, H. L.	101 E. Preston St.	Roentgenology
Sax, Benjamin J.	101 Read St.	Diagnostic roent.
Walton, Henry J.	104 W. Madison St.	Roentgenology
Waters, Charles A.	1100 N. Charles St.	Roentgenology
Wright, Harold E.	101 Read St.	Diagnostic roent.
Crisfield		
Collins, C. E.		Roentgenology
Cumberland		
Cowherd, F. G.	122 S. Centre St.	Roentgenology
Hagerstown		
Hoffmeier, F. N.	Washington County Hosp.	Roentgenology

MASSACHUSETTS

Boston		
Blackett, Chas. W.	35 Bay State Road	Roentgenology
Butler, P. F.	35 Bay State Road	General radiology
Coffin, W. K.	416 Marlboro St.	Roentgenology
Ellsworth, S. W.	520 Beacon St.	Roentgenology
Holmes, Geo. W.	265 Charles St.	General radiology
Liebman, Charles	311 Commonwealth Ave.	Roentgenology
MacMillan, A. S.	483 Beacon St.	Roentgenology
McCarthy, H. L.	479 Beacon St.	Roentgenology
O'Brien, Fredk. W.	465 Beacon St.	General radiology
Ott, George J.	344 Commonwealth Ave.	Roentgenology
Perkins, Roy S.	520 Commonwealth Ave.	Roentgenology
Ritvo, Max	485 Commonwealth Ave.	General radiology
Robins, Samuel A.	636 Beacon St.	Roentgenology
Sosman, M. C.	Peter Bent Brigham Hosp.	Roentgenology *
Vance, R. G.	264 Beacon St.	Roentgenology
Vogt, E. C.	300 Longwood Ave.	Roentgenology
Watts, Henry F.	6 Monadnock St., Dor.	Diagnostic roent.
Wheatley, Frank E.	520 Beacon St.	Roentgenology
Brockton		
Packard, Loring B.	305 Prospect St.	Roentgenology
Chelsea		
Hutchinson, R. W.	U. S. Naval Hospital	Roentgenology
Dalton		
Sullivan, P. J.		Roentgenology
Fall River		
Lindsey, John H.	151 Rock St.	Roentgenology
Tennis, M. N.	538 Prospect St.	General radiology
Fitchburg		
Jennings, Curtis H.	82 Mechanic St.	Roentgenology
Haverhill		
McFee, William D.	295 Mill St.	Roentgenology
Popoff, Constantine	26 Summer St.	Roentgenology *
Sproull, John	50 Merrimack St.	General radiology
Holyoke		
Harrington, Elmer J.	179 Chestnut St.	Roentgenology *
Lawrence		
Burgess, Charles J.	37 Whitman St.	General radiology
Lowell		
Mehan, Joseph A.	4 Park St.	Roentgenology
Stewart, Ralph C.	226 Central St.	Roentgenology
Malden		
Warren, Alva H.	6 Pleasant St.	Roentgenology
New Bedford		
Bonnar, James M.	90 Hillman St.	Roentgenology
North Adams		
Bunce, James W.	85 Main St.	Roentgenology
Crawford, J. W.	191 E. Main St.	General radiology
Northampton		
Janes, Benjamin F.	211 Elm St.	Roentgenology
Somerville		
Blake, Allen H.	81 College Ave., W. Som.	Roentgenology
Springfield		
Davis, Ernest L.	20 Maple St.	Roentgenology
Horrigan, A. J.	20 Maple St.	Roentgenology
Jackson, Howard L.	146 Chestnut St.	Roentgenology
Powers, Richard T.	25 Maple St.	Diagnostic roent.
Van Allen, Harvey W.	19 Maple St.	General radiology
Webster		
Bragg, Leslie R.	260 Main St.	Diagnostic roent.
Worcester		
Cook, Philip H.	27 Elm St.	Roentgenology
		Radium therapy
Langill, Morton H.	36 Pleasant St.	Roentgenology

MICHIGAN

Adrian		
Chase, A. W.	130 Toledo St.	Diagnostic roent.
Ann Arbor		
Donaldson, Sam W.	St. Joseph's Mercy Hospital	Roentgenology
Hodges, Fred J.	University of Michigan	Roentgenology
Peirce, Carleton B.	University Hospital	General radiology
Battle Creek		
Gorsline, C. S.	65 W. Michigan St.	Diagnostic roent.
Kolvoord, Theodore	65 W. Michigan St.	Diagnostic roent.
Upson, W. O.	Leila Y. Post Montgomery Hospital	Roentgenology

NAME	ADDRESS	TYPE OF SERVICE
Bay City		
Moffatt, Francis J.	Mercy Hospital	Roentgenology
Detroit		
Berris, J. M.	10 Peterboro St.	Diagnostic roent.
Birkelo, Carl C.	28 W. Adams Ave.	Roentgenology
Bloom, Arthur R.	5057 Woodward Ave.	Roentgenology
Dempster, Jas. H.	1551 Woodward Ave.	Diagnostic roent.
Doub, Howard P.	Henry Ford Hospital	General radiology
Evans, Wm. A.	10 Peterboro St.	General radiology
Hasley, Clyde K.	1551 Woodward Ave.	General radiology
Jarre, Hans A.	1551 Woodward Ave.	General radiology
Kenning, J. C.	28 W. Adams Ave.	Roentgenology
Lim, W. K.	2201 E. Jefferson Ave.	General radiology
Loucks, R. E.	337 W. Grand Blvd.	General radiology
Reynolds, Lawrence	10 Peterboro St.	General radiology
Sanderson, S. E.	5057 Woodward Ave.	General radiology
Stevens, Rollin H.	1551 Woodward Ave.	General radiology
Ulbrich, Henry L.	1122 E. Grand Blvd.	Roentgenology *
Weaver, Clarence E.	113 Martin Place	Roentgenology
Flint		
Chapell, Carl D.	227 S. Saginaw St.	General radiology
MacDuff, Robert B.	Hurley Hospital	Roentgenology *
Grand Rapids		
Menees, Thomas O.	Blodgett Memorial Hospital	General radiology
Moore, Vernor M.	116 E. Fulton St.	General radiology
Muller, John H.	26 Sheldon Ave., S.E.	General radiology
Williams, Alden H.	26 Sheldon Ave., S.E.	General radiology
Highland Park		
Minor, Edward G.	Glendale and Lincoln Aves.	Roentgenology
Jackson		
Cooley, R. M.	Mercy Hospital	Roentgenology
Kugler, J. C.	1905 Grovedale Ave.	Roentgenology
Porter, H. W.	1020 E. Michigan Ave.	General radiology
Kalamazoo		
Crane, A. W.	420 S. Rose St.	Roentgenology *
Lansing		
Davenport, Carroll S.	St. Lawrence Hospital	Roentgenology *
Monroe		
Moll, T. M.	120 Maple Blvd.	Diagnostic roent.
Owosso		
Parker, Jesse O.	100 N. Washington St.	Diagnostic roent.
Pontiac		
Church, J. E.	35 W. Huron St.	Roentgenology
Pool, H. H.	35 W. Huron St.	Roentgenology
Saginaw		
Anderson, Wm. K.	Saginaw General Hospital.	Diagnostic roent.
St. Johns		
Ho, T. Y.		Diagnostic roent.
Traverse City		
Minor, E. B.	208½ E. Front St.	Diagnostic roent.
Ypsilanti		
Pillsbury, Chas. B.	23 N. Washington St.	Diagnostic roent.

MINNESOTA

Duluth		
Clement, Gage	901 E. 1st St.	General radiology
Mankato		
Wentworth, A. J.	Mankato Clinic	General radiology
Minneapolis		
Allison, R. G.	74 S. 9th St.	Roentgenology *
Fleming, A. S.	900 Nicollet Ave.	Radium therapy
Harrington, Chas. D.	78 S. 9th St.	General radiology
Nordin, G. T.	74 S. 9th St.	Roentgenology *
Rigler, Leo G.	University Hospital	Diagnostic roent.
Sundt, Mathias	2323, 6th St. S.	Roentgenology
Ude, Walter H.	74 S. 9th St.	Roentgenology *
Rochester		
Desjardins, A. U.	Mayo Clinic	Roentgen therapy Radium therapy
Kirklin, B. R.	Mayo Clinic	Diagnostic roent.
St. Cloud		
Kern, M. J.	511, 9th Ave., N.	Roentgenology *
St. Paul		
Aurelius, J. R.	350 St. Peter St.	Roentgenology *
Schons, Edward	350 St. Peter St.	General radiology

MISSISSIPPI

Gulfport		
Sims, Geo. P.	1005, 32d Ave.	Diagnostic roent.
Jackson		
Maxwell, Victor W.	Mississippi Baptist Hospital	Diagnostic roent.
Laurel		
McCormick, H. G.	531, 7th St.	Roentgenology
McComb		
Ratcliff, M. D.	Maryland and 4th Sts.	Diagnostic roent.
Natchez		
Beekman, Marcus	307 Franklin St.	Diagnostic roent.

MISSOURI

Holden		
Thompson, Wm. C.		General radiology
Jefferson City		
Mansur, Edward	230 Jefferson St.	Roentgenology *
Joplin		
McCaughey, H. D.	607 Main St.	General radiology
Kansas City		
Dann, David S.	304 E. 12th St.	Roentgenology
DeWeese, E. R.	904 Grand Ave.	Roentgenology
Donaldson, C. O.	1103 Grand Ave.	General radiology
Lockwood, Ira H.	304 E. 12th St.	General radiology
McCandless, O. H.	308 E. 12th St.	Roentgenology
McDermott, J. L.	1103 Grand Ave.	General radiology
Skinner, Edward H.	1103 Grand Ave.	General radiology
Virden, C. E.	1103 Grand Ave.	General radiology
St. Joseph		
McGlothlan, A. B.	824 Edmond St.	Roentgenology *
Ravold, Henry J.	401 N. 6th St.	Roentgenology
St. Louis		
Ernst, Edwin C.	3720 Washington Ave.	General radiology
McCutchen, L. G.	508 N. Grand Blvd.	Roentgenology *
Moore, Sherwood	Barnes Hospital	General radiology
Mueller, Wilbur K.	607 N. Grand Blvd.	Roentgenology
Peden, Joseph C.	634 N. Grand Blvd.	Roentgenology
Sante, L. R.	634 N. Grand Blvd.	General radiology
Spinzig, Edgar W.	508 N. Grand Blvd.	Roentgenology
Titterington, P. F.	508 N. Grand Blvd.	Roentgenology
Zink, Oscar C.	St. Luke's Hospital	Roentgenology
Springfield		
Cole, Paul F.	200 Pershing Ave.	General radiology
Webster Groves		
Kerrigan, Joseph A.	421 S. Elm St.	Diagnostic roent.

MONTANA

Billings		
Bridenbaugh, J. H.	208 N. Broadway	General radiology
Watkins, C. F.	115 N. 28th St.	General radiology
Great Falls		
Walker, Dora	127 Central Ave.	Roentgenology

NEBRASKA

Beatrice		
Penner, H. G.	113 S. 5th St.	Roentgenology *
Rush, Weaver A.	112½ S. 6th St.	General radiology
Grand Island		
Woodruff, R. C.	306½ N. Locust St.	Roentgenology
Hastings		
Rork, Lee W.	119 N. Hastings Ave.	Roentgenology *
Lincoln		
Kail, Carl	1307 N St.	Roentgenology *
Rowe, Edward W.	128 N. 13th St.	General radiology
Smith, Roscoe L.	1307 N St.	General radiology
Omaha		
Fouts, Roy W.	107 S. 17th St.	General radiology
Hardy, Clyde C.	107 S. 17th St.	Roentgenology
Hunt, Howard	Nebraska Methodist Episcopal Hospital	Roentgenology
Kelly, J. F.	107 S. 17th St.	General radiology
Overgaard, A. P.	107 S. 17th St.	Roentgenology
Ross, W. L.	407 S. 16th St.	Roentgenology
Tyler, Albert F.	103 S. 17th St.	General radiology
Scottsbluff		
Plehn, Frank W.		Roentgenology

NEVADA

Reno		
Piersall, C. E.	120 N. Virginia St.	General radiology

NEW HAMPSHIRE

Concord		
Eveleth, Fred S.	12 Court St.	Roentgenology
Dover		
Chesley, Harry O.	507 Central Ave.	Roentgenology
Hanover		
Sycamore, Leslie	Mary Hitchcock Memorial Hospital	General radiology
Manchester		
Bragg, J. Sumner	967 Elm St.	Roentgenology
Merrill, A. S.	944 Elm St.	Roentgenology
Nashua		
Davis, S. G.	168 Main St.	Roentgenology
Rock, T. F.	77 Main St.	Diagnostic roent.

NEW JERSEY

Asbury Park		
Herrman, William G.	501 Grand Ave.	General radiology
Atlantic City		
Bradley, Robert A.	1616 Pacific Ave.	General radiology
Kaighn, Charles B.	905 Pacific Ave.	Roentgenology
Camden		
Roberts, Joseph E.	403 Cooper St.	Roentgenology
East Orange		
Reitter, George S.	31 Washington St.	Diagnostic roent.
Elizabeth		
Vogel, Herbert A.	1060 E. Jersey St.	Diagnostic roent.
Ward, Leo J.	137 W. Jersey St.	General radiology
Englewood		
Edwards, James B.	Englewood Hospital	Roentgenology
Flemington		
Tompkins, G. B.		Diagnostic roent.
Jersey City		
Maver, William W.	532 Bergen Ave.	Roentgenology
Perlberg, Harry J.	921 Bergen Ave.	Roentgenology
Montclair		
Schimmelpfennig, R. D.	65 N. Fullerton Ave.	Roentgenology
Stevens, J. Thompson.	55 Park St.	General radiology
Newark		
Baker, Charles F.	198 Clinton Ave.	Roentgenology *
Hood, Philip G.	19 Lincoln Park	Diagnostic roent.
Reissman, Erwin	31 Lincoln Park	Diagnostic roent.
Passaic		
Terhune, Percy H.	171 Paulison Ave.	Roentgenology
Paterson		
Golding, Harry N.	180 Carroll St.	Roentgenology
Roemer, Jacob	213 Broadway	General radiology
Succasunna		
Plume, C. A.		Diagnostic roent.

NAME	ADDRESS	TYPE OF SERVICE
Summit		
Tidaback, John D....	382 Springfield Ave.....	Roentgenology
Trenton		
Davison, Winthrop R.	200 E. State St.....	General radiology
NEW YORK		
Albany		
Howard, W. P.....	46 Willett St.....	Roentgenology
Prentice, D. D.....	59 Clinton Ave.....	General radiology
Amsterdam		
Wilson, David.....	156 Guy Park Ave.....	Roentgenology
Auburn		
Austin, Sedgwick E...	54 E. Genesee St.....	Diagnostic roent.
Bull, Harry S.....	10 South St.....	Roentgenology
Binghamton		
Kann, Ulysses S.....	69 Walnut St.....	General radiology
Brooklyn		
Bayles, William H...	1901 Bedford Ave.....	Diagnostic roent.
Bell, A. L. Loomis...	340 Henry St.....	General radiology
Cramp, George W....	Methodist Episcopal Hosp.	Diagnostic roent.
Currin, Francis W....	1136 Dean St.....	General radiology
Eastmond, Charles...	483 Washington Ave.....	Roentgenology *
Ehrenpreis, B.....	576 Eastern Parkway.....	Roentgenology
Elliott, F. E.....	122, 76th St.....	Diagnostic roent.
Gold, Louis.....	835 Willoughby Ave.....	Diagnostic roent.
Goldfarb, L.....	608 Ocean Ave.....	Diagnostic roent.
Howes, William E....	152 Clinton St.....	Roentgenology
Ingraham, Ruth.....	121 DeKalb Ave.....	Diagnostic roent.
Kaufman, Julius.....	201 Eastern Parkway.....	Roentgenology
Liberson, F.....	612 Eastern Parkway.....	Diagnostic roent.
Masterson, John J....	401, 76th St.....	Roentgenology
Rendich, Richard A...	116 Remsen St.....	Roentgenology
Schenck, Samuel G...	1538 President St.....	Diagnostic roent.
Strahl, Milton I.....	255 New York Ave.....	Diagnostic roent.
Teperson, H. I.....	1488 Eastern Parkway.....	General radiology
Wasch, Milton G.....	871 Park Pl.....	General radiology
Buffalo		
Barnes, John M.....	Millard Fillmore Hospital..	Roentgenology
Bayliss, J. W.....	472 Delaware Ave.....	Diagnostic roent.
DeGraff, Ralph M.....	131 Linwood Ave.....	Diagnostic roent.
Gian-Franceschi, J. S..	610 Niagara St.....	Diagnostic roent.
Helminiak, M. J.....	929 Fillmore Ave.....	Diagnostic roent.
Koenig, Edward C....	100 High St.....	Diagnostic roent.
Lape, C. Pearley.....	183 Oxford Ave.....	Diagnostic roent.
Levy, Sidney H.....	33 Allen St.....	Diagnostic roent.
Levyn, Lester.....	40 North St.....	Roentgenology
Moses, Chester D.....	563 Riley St.....	Diagnostic roent.
Orr, Clifford R.....	1093 Ellicott St.....	Roentgenology *
Schreiner, B. F.....	113 High St.....	General radiology
Thompson, A. W.....	135 Linwood Ave.....	Diagnostic roent.
Cooperstown		
Cruttenden, Harry L..	.....	General radiology
Cortland		
Sornberger, Frank F.	16 Church St.....	Roentgenology
Elmira		
Bennett, John A.....	222 W. Church St.....	Roentgenology
Far Rockaway		
Rivkin, Hyman.....	918 Cornaga Ave.....	Diagnostic roent.
Glens Falls		
Birdsall, Edgar.....	140 Glen St.....	Roentgenology
Gloversville		
Denham, H. C.....	12 Prospect Ave.....	Roentgenology
Hempstead		
Robin, Nathaniel H...	131 Fulton Ave.....	Roentgenology
Williams, P. A.....	131 Fulton Ave.....	Diagnostic roent.
Hornell		
Mitchell, George W...	208 Main St.....	Roentgenology
Hudson		
Harris, Rosslyn P....	427 Warren St.....	Diagnostic roent.
Lackawanna		
Cotter, Stephen V....	1457 Abbott Rd.....	Roentgenology
Mechanicsville		
Green, Geo. A.....	.....	Diagnostic roent.
Mount Kisco		
Vaughan, F. E.....	.....	Diagnostic roent.
Newburgh		
Miller, Raymond A...	212 Grand St.....	Diagnostic roent.
Reed, Charles B.....	205 Liberty St.....	Roentgenology
New Rochelle		
Duckworth Willard D..	421 Huguenot St.....	Roentgenology
New York City		
Bendick, Arthur J....	100 E. 94th St.....	General radiology
Besser, Herman.....	66 E. 56th St.....	Roentgenology
Black, Ellis M.....	1425 Zerega Ave.....	Roentgenology
Carty, John R.....	27th St. and 1st Ave.....	Roentgenology
Cole, Lewis Gregory..	36 E. 61st St.....	Roentgenology *
Dieffenbach, W. H...	50 Central Park West.....	General radiology
Dixon, Geo. S.....	218, 2d Ave.....	Diagnostic roent.
Ferguson, A. B.....	420 E. 59th St.....	Roentgenology
Fineman, S.....	40 E. 49th St.....	Diagnostic roent.
Freid, Jacob R.....	1049 Park Ave.....	General radiology
Friedman, Lewis J....	315 E. 18th St.....	Roentgenology
Glassman, I.....	138 E. 36th St.....	Diagnostic roent.
Golden, Ross.....	622 W. 168th St.....	Roentgenology
Gottlieb, Charles.....	210 W. 79th St.....	Roentgenology
Groeschel, L. B.....	40 W. 72d St.....	General radiology
Hirsch, Henry.....	2075 Grand Concourse.....	General radiology
Hirsch, I. Seth.....	136 E. 64th St.....	General radiology
Howard, J. Campbell.	40 E. 61st St.....	Roentgenology *
Imboden, Harry M....	30 W. 59th St.....	General radiology
Jaches, Leopold.....	100 E. 94th St.....	General radiology
Kaplan, Ira I.....	55 E. 86th St.....	Roentgen therapy Radium therapy
Kaplan, Morris.....	130 Henry St.....	Diagnostic roent.
Katz, Harry.....	141 Broome St.....	Diagnostic roent.
Lapman, Charles.....	2754 Grand Concourse.....	Diagnostic roent.
Law, Frederick M....	576 Fifth Ave.....	Diagnostic roent.
Lefrak, Louis.....	251 E. Broadway.....	Diagnostic roent.
Lenz, Maurice.....	1049 Park Ave.....	Roentgen therapy Radium therapy
LeWald, L. T.....	114 E. 54th St.....	Roentgenology
Lewis, Raymond W...	30 E. 40th St.....	Diagnostic roent.
Meyer, William Henry	1 University Pl.....	Roentgenology *
Philips, Herman B....	9 W. 68th St.....	General radiology
Pomeranz, M. M.....	911 Park Ave.....	General radiology
Powell, C. B.....	2368 Seventh Ave.....	Diagnostic roent.
Quick, Douglas.....	350 Park Ave.....	Radium therapy
Quimby, Adoniram J..	5 E. 57th St.....	Roentgenology
Remer, John.....	200 W. 59th St.....	Roentgen therapy
Robinson, G. Allen...	120 E. 75th St.....	Radium therapy
Robinson, William....	322 W. 72d St.....	Roentgenology
Ryan, E. J.....	912 Fifth Ave.....	Roentgenology
Scholz, Thomas.....	38 E. 85th St.....	Diagnostic roent.
Schwartz, C. W.....	32 E. 68th St.....	Roentgenology
Schwartz, Irving.....	1150 Fifth Ave.....	Diagnostic roent.
Spillman, Ramsay....	115 E. 61st St.....	Diagnostic roent.
Steiner, Joseph M....	170 East End Ave.....	Roentgenology *
Stewart, Wm. H.....	222 W. 79th St.....	Roentgenology
Taylor, Henry K.....	333 West End Ave.....	Diagnostic roent.
Unger, Arthur S.....	135 E. 74th St.....	Roentgenology
Valenti, Antonio.....	150 W. 79th St.....	Roentgenology
Weinberg, Tobias B...	310 E. 15th St.....	Roentgenology
Weitzner, Samuel F...	1018 E. 163d St.....	Roentgenology
Niagara Falls		
Scott, Walter Roger..	598 Pine Ave.....	General radiology
Oswego		
Lavine, Reuben.....	25 W. Oneida St.....	Diagnostic roent.
Wallace, H. M.....	140 W. 5th St.....	Roentgenology
Peekskill		
Snowden, Fred A.....	108 Depew St.....	Diagnostic roent.
Port Chester		
West, Theodore.....	324 Westchester Ave.....	General radiology
Poughkeepsie		
Davison, Chester O...	Vassar Brothers Hospital..	General radiology
Richmond Hill		
Voltz, Albert L.....	11520 Myrtle Ave.....	General radiology
Rochester		
Almy, Max A.....	16 N. Goodman St.....	Roentgenology
Davidson, Sol C.....	277 Alexander St.....	General radiology
Flynn, James M.....	277 Alexander St.....	General radiology
Green, Joseph H	277 Alexander St.....	Roentgenology
Palmer, Myron B.....	277 Alexander St.....	General radiology
Sanders, L. J.....	213 Alexander St.....	Roentgenology
Thomas, Camp C.....	476 Lake Ave.....	Roentgenology
Saratoga Springs		
King, Earl H.....	75 Caroline St.....	Roentgenology
Syracuse		
Caliva, Salvatore.....	510 Prospect Ave.....	Diagnostic roent.
Childs, Donald S.....	713 E. Genesee St.....	Roentgenology
Henry, Lucas S.....	116 E. Castle St.....	Roentgenology
Potter, Carlton F.....	620 S. Crouse Ave.....	Roentgenology
Rulison, Foster C.....	713 E. Genesee St.....	Roentgenology
Troy		
Hull, Thurman A.....	505 Broadway.....	Diagnostic roent.
Utica		
Powers, M. T.....	250 Genesee St.....	Roentgenology
Watertown		
Pawling, Jesse R.....	100 Stone St.....	Roentgenology Radium therapy
White Plains		
Duckworth, R. D.....	57 Maple Ave.....	Roentgenology
Sherman, Herbert.....	99 Church St.....	Roentgenology
NORTH CAROLINA		
Asheville		
Murphy, G. W.....	Flat Iron Bldg.....	Roentgenology *
Charlotte		
Lafferty, Robert H....	127 W. 7th St.....	General radiology
Phillips, Clyde C.....	19 W. 7th St.....	General radiology
Greensboro		
Rhudy, Booker E.....	101 N. Elm St.....	Roentgenology
Raleigh		
Noble, Robert P.....	131 W. Hargett St.....	Diagnostic roent.
Statesville		
McElwee, R. S.....	Stearns Bldg.....	Roentgenology
Winston-Salem		
Rousseau, J. P.....	310 W. 4th St.....	General radiology
NORTH DAKOTA		
Bismarck		
Berg, Henning Milton.	221, 5th St.....	Roentgenology *
Fargo		
Rothnem, Thos. Peter.	804 Broadway.....	Roentgenology
Grand Forks		
Woutat, H. G.....	2 N. 3d St.....	Roentgenology
Minot		
Gates, Russell.....	20, 4th Ave. S.W.....	Roentgenology *
OHIO		
Akron		
Beals, John A.....	St. Thomas Hospital.....	Diagnotic roent.
Selby, John H.....	159 S. Main St.....	Roentgenology
Stall, A. H.....	City Hospital.....	General radiology
Stewart, J. E.....	159 S. Main St.....	Roentgenology
Ashtabula		
Collander, P. J.....	Medical Bldg.....	Roentgenology
Canton		
Peters, Chester M.....	709 Cleveland Ave. N.W....	General radiology
Peterson, E. O.....	120 Tuscarawas St. W.....	Roentgenology *
Shorb, John E.....	427 Market Ave. S.....	Roentgenology *
Chillicothe		
Holmes, Ralph W.....	57 W. Main St.....	Roentgenology

NAME	ADDRESS	TYPE OF SERVICE
Cincinnati		
Bader, E. R.	628 Elm St.	General radiology
Benzing, George	Cincinnati General Hospital	General radiology
Brodberger, Wm. L.	2556 Eastern Ave.	Roentgenology
Brown, Samuel	707 Race St.	Roentgenology *
Doughty, Wm. M.	628 Elm St.	General radiology
Goosmann, Charles	22 W. 7th St.	General radiology
Lange, Sidney	19 Garfield Place	Roentgenology
Reineke, Harold G.	Cincinnati General Hospital	Roentgenology *
Warne, B. M.	19 Garfield Place	Roentgenology
Cleveland		
Bettelheim, Frederick.	1020 Huron Rd.	General radiology
Farmer, H. L.	10515 Carnegie Ave.	General radiology
Freedman, Edward F.	25 Prospect Ave.	Roentgenology
Hill, W. C.	2930 Prospect Ave.	General radiology
LeFevre, Walter I.	9400 Euclid Ave. and 2064 East 9th St.	Roentgenology
Mahrer, H. A.	2104 Stearns Rd.	Roentgenology
May, Raymond V.	10515 Carnegie Ave.	General radiology
May, Robert J.	10515 Carnegie Ave.	General radiology
McCoy, Charles C.	Lakeside Hospital	Roentgenology *
McNamee, Edgar P.	25 Prospect St. N.W.	Diagnostic roent.
Nichols, B. H.	2050 E. 93d St.	General radiology
Osmond, John D.	8314 Euclid Ave.	General radiology
Portmann, U. V.	Cleveland Clinic	Roentgen therapy Radium therapy
Steel, David	Lakeside Hospital	Roentgenology
Thomas, M. A.	10515 Carnegie Ave.	General radiology
Columbus		
Bowen, Chas. F.	332 E. State St.	General radiology
Means, Hugh J.	683 E. Broad St.	General radiology
Reinert, Edward G.	350 E. State St.	General radiology
Riebel, Frank A.	15 W. Goodale St.	Roentgenology
Weirauk, H. V.	9 Buttles Ave	Roentgenology
Dayton		
Burnett, Harry W.	201 S. Main St.	General radiology
Delscamp, W. H.	201 S. Main St.	Roentgenology
Jones, Lyan M.	117 S. Main St.	Roentgenology *
Fremont		
Philo, D. W.	209 W. State St.	Roentgenology
Gallipolis		
Wilson, Milo		General radiology
Lakewood		
McDowell, John R.	15701 Detroit Ave.	Roentgenology
Shetter, North W.	14600 Detroit Ave.	Roentgenology
Lima		
Thomas, Herbert A.	131 N. Elizabeth St.	General radiology
Massillon		
Holston, J. D.	Massillon City Hospital	Diagnostic roent.
Piqua		
Spencer, Robert D.	400 N. Main St.	Roentgenology
Salem		
Heck, Stanton	1160 E. State St.	Roentgenology
Springfield		
Brubaker, E. R.	8 W. Main St.	General radiology
Steubenville		
Miller, J. E.	401 Market St.	General radiology
Toledo		
Kahn, Dalton	237 Michigan St.	Roentgenology
Murphy, John T.	421 Michigan St.	General radiology
Warren		
Gauchat, Paul C.	197 W. Market St.	Roentgenology
Simpson, D. G.	1 Main St.	Roentgenology
Youngstown		
Bachman, M. H.	314 N. Phelps St.	Roentgenology *
Heberding, John	151 W. Rayen Ave.	Roentgenology
Meyer, N. N.	23 Central Square	Diagnostic roent.
Zanesville		
Holston, J. G. F.	620 South St.	Roentgenology

OKLAHOMA

Enid		
Newell, W. B.	502 N. Independence St.	Roentgenology
Marlow		
Talley, C. N.		Diagnostic roent.
McAlester		
Johnston, James C.	216½ E. Choctaw Ave.	Roentgenology
Oklahoma City		
Heatley, John E.	117 N. Broadway	Diagnostic roent.
Wilson, E. C.	117 N. Broadway	Roentgenology
Shawnee		
Hughes, J. E.	14 E. 9th St.	Diagnostic roent. Radium therapy
Sulphur		
Annadown, P. V.		Diagnostic roent.
Tulsa		
Larrabee, W. S.	108 W. 6th St.	Roentgenology
Lhevine, Morris B.	108 W. 6th St.	Diagnostic roent.
Stuart, Leon H.	7 W. 6th St.	Roentgenology

OREGON

Portland		
Dixon, William	193, 11th St.	Diagnostic roent.
Haworth, Wallace	490 Myrtle St.	Roentgenology
Palmer, Dorwin L.	430 Morrison St.	General radiology
Walker, Ralph C.	364 Washington St.	General radiology
Wight, Otis B.	193, 11th St.	Radium therapy

PENNSYLVANIA

Allentown		
Smyth, Thos. L.	111 N. 8th St.	General radiology
Troxell, Wm. C.	941 Hamilton St.	General radiology
Altoona		
Alleman, George E.	1410, 12th Ave.	Roentgenology
Bliss, Gerald D.	1220, 13th Ave.	General radiology
Ashland		
Mulligan, P. B.		Roentgenology
Bethlehem		
Leibert, H. F.	338 Wyandotte St.	Roentgenology
Chester		
Egbert, Walter E.	601 E. 13th St.	Roentgenology *
Sharpe, A. Maxwell	708 Sproul St.	Roentgenology *
Clearfield		
Reiley, W. E.		General radiology
Coatesville		
Perkins, J. A.	367 Chestnut St.	Diagnostic roent.
Danville		
Hawley, S. J.		Roentgenology *
Drexel Hill		
Clagett, A. H.		Roentgenology
DuBois		
Gann, G. W.	49 E. Long Ave.	Roentgenology
McCormick, A. F.	Maple Avenue Hospital	Roentgenology
Easton		
Quiney, James J.	309 Bushkill St.	General radiology
Erie		
Putts, B. Swayne	117 W. 8th St.	Roentgenology
Greensburg		
McMurray, H. A.	107 S. Main St.	Roentgenology
Harrisburg		
Ritzman, A. Z.	234 State St.	Roentgenology
Hatboro		
Shoemaker, Robt., 3d.		Roentgenology
Hazleton		
Dessen, Louis A.	4 W. Broad St.	Roentgenology
Huntingdon		
Keichline, John M.		General radiology
Johnstown		
Stewart, H. M.	406 Main St.	General radiology
Kingstown		
Howell, G. L.	Kingston Corners Bldg.	Roentgenology
Lancaster		
Davis, Henry B.	530 N. Lime St.	Roentgenology Radium therapy
Snoke, Paul O.	530 N. Lime St.	Roentgenology
Swab, Robert D.	23 E. Walnut St.	Roentgenology
Lebanon		
Boger, John D.	341 Cumberland St.	Diagnostic roent.
Lewistown		
Weaver, O. M.	12 S. Main St.	Roentgenology
Lock Haven		
Green, Geo. D.		Roentgenology
McKeesport		
Snedden, A. R.	522 Walnut St.	Roentgenology
New Castle		
Cooper, J. R.	111 E. North St.	General radiology
Norristown		
Campbell, Raymond F.	514 Swede St.	Diagnostic roent.
Perkasie		
Strouse, O. H.		Roentgenology
Philadelphia		
Bird, G. C.	1415 W. Erie St.	Roentgenology
Borzell, Francis F.	4940 Penn St.	Roentgenology
Bowen, David R.	Pennsylvania Hospital	General radiology
Bromer, Ralph S.	Hospital of the Protestant Episcopal Church	Roentgenology
Bruck, Samuel	2104 Pine St.	Roentgenology
Chamberlain, W. E.	Temple University Hospital	General radiology
Downs, E. E.	Jeannes Hospital	General radiology
Gershon-Cohen, J.	19th and Spruce Sts.	Roentgenology
Henry, Robert W.	768 S. 15th St.	Roentgenology
Koenig, Carl F.	1734 Harrison St.	Roentgenology
Morgan, J. D.	2226 Delancey St.	General radiology
Newcomet, W. S.	3501 Baring St.	General radiology
Pancoast, Henry K.	3400 Spruce St.	General radiology
Percival, M. F.	Methodist Episcopal Hosp.	General radiology
Pfahler, George E.	1321 Spruce St.	General radiology
Post, Joseph W.	1930 Chestnut St.	Roentgenology
Rosenbaum, George	1521 Spruce St.	Roentgenology *
Schmidt, Wm. Henry.	1601 Walnut St.	General radiology
Sender, Arthur C.	1311 W. Allegheny Ave.	Roentgenology
Spackman, E. W.	1824 Chestnut St.	Roentgenology
Widmann, B. P.	250 S. 18th St.	General radiology
Wiley, Louis R.	1512 N. 15th St.	Roentgenology
Zulick, J. Donald	2008 Walnut St.	Roentgenology
Philipsburg		
Benson, Andrew L.		Roentgenology
Pittsburgh		
Caldwell, C. S.	520 S. Aiken Ave.	Diagnostic roent.
Fisher, J. W.	500 Penn Ave.	General radiology
Gorfinkell, Julius	3401 Fifth Ave.	Roentgenology
Grier, G. W.	500 Penn Ave.	General radiology
Grimm, Homer W.	500 Penn Ave.	General radiology
Johnston, Z. A.	500 Penn Ave.	Roentgenology
McAdams, Edward C.	119 S. Highland Ave.	Roentgenology
McCullough, John F.	500 Penn Ave.	General radiology
Ray, William B.	110 E. Stockton Ave.	Roentgenology *
Robinson, Ralph V.	500 Penn Ave.	General radiology
Schaefer, C. N.	500 Penn Ave.	General radiology
Schumacher, F. L.	500 Penn Ave.	Roentgenology
Reading		
Meter, Edward G.	249 N. 5th St.	Roentgenology *
Rochester		
McCaskey, F. H.		Roentgenology
Scranton		
Jackson, B. H.	327 N. Washington Ave.	General radiology
Milkman, Louis A.	327 N. Washington Ave.	Roentgenology
von Poswik, Gisela	217 Jefferson Ave.	Roentgenology
Shippensburg		
Stewart, Alexander		Roentgenology

NAME	ADDRESS	TYPE OF SERVICE
Tamaqua		
Hinkel, William H.	.....	Roentgenology
Uniontown		
Hess, George H.	104 Morgantown St.	Roentgenology
West Chester		
Pennell, Howard Y.	Chester County Hospital	Roentgenology
Wilkes-Barre		
DesJardins, A.	Wilkes-Barre General Hosp.	Roentgenology *
Rogers, Lewis L.	38 N. Franklin St.	Roentgenology
Wilkinsburg		
McGregor, William J.	901 Wood St.	Roentgenology
Williamsport		
Schneider, Geo. L.	212 Pine St.	Roentgenology
Wursted, L. E.	416 Pine St.	Roentgenology
York		
Bennett, J. H.	1253 W. Market St.	General radiology
Landes, L. S.	454 W. Market St.	Diagnostic roent.
RHODE ISLAND		
Newport		
Wheatland, Marcus F.	84 John St.	Diagnostic roent.
Providence		
Albert, Simon	108 Waterman St.	Diagnostic roent.
Farrell, John T.	68 Jackson St.	Diagnostic roent.
Gerber, Isaac	201 Waterman St.	General radiology
Kelley, Jacob S.	153 Smith St.	Diagnostic roent.
Woonsocket		
Garrison, Norman S.	38 Hamlet Ave.	General radiology
SOUTH CAROLINA		
Anderson		
Wrenn, Frank	Anderson County Hospital	General radiology
Charleston		
Taft, Robert B.	105 Rutledge St.	General radiology
Columbia		
Pitts, Thomas A.	1515 Marion St.	General radiology
Rodgers, Floyd D.	1417 Hampton St.	General radiology
Florence		
Hay, Percy D., Jr.	111 W. Cheves St.	General radiology
Greenville		
Judy, W. S.	107 E. North St.	Roentgenology
Spartanburg		
Sheridan, William M.	116 W. Main St.	General radiology
SOUTH DAKOTA		
Pierre		
McLaurin, A. A.	.....	Roentgenology *
Sioux Falls		
Nessa, Nellus J.	301 S. Minnesota Ave.	Roentgenology
Watertown		
Koren, F.	Broadway and Kemp Ave.	Roentgenology *
TENNESSEE		
Chattanooga		
Bogart, F. B.	544 McCallie Ave.	Roentgenology
Frere, John Marsh	707 Walnut St.	Roentgenology *
Marchbanks, S. S.	544 McCallie Ave.	General radiology
Johnson City		
Hankins, John L.	300 N. Boone St.	Roentgenology
Peyton, R. L.	Mount'n Branch, N.H.D.V.S.	Roentgenology
Knoxville		
Abercrombie, Eugene	425 W. Clinch Ave.	Roentgenology
Casenburg, S. F.	601 Walnut St.	Roentgenology
McCampbell, H. H.	614 Walnut St.	General radiology
Memphis		
Bethea, W. R.	869 Madison Ave.	Roentgenology *
Coley, Steve W.	1265 Union Ave.	Roentgenology *
Heacock, Charles H.	20 S. Dunlap St.	General radiology
Herring, J. H.	995 Madison Ave.	Roentgenology
King, J. Cash	915 Madison Ave.	Roentgenology
Lawrence, W. S.	248 Madison Ave.	General radiology
Paine, Robert	248 Madison Ave.	General radiology
Pulliam, H. N.	130 Madison Ave.	Roentgenology
Robinson, W. W.	1291 Union Ave.	Roentgenology
Nashville		
Shoulders, H. S.	706 Church St.	Roentgenology
TEXAS		
Amarillo		
Van Sweringen, Walter	301 Polk St.	Roentgenology
Vaughan, John H.	724 Polk St.	General radiology
Beaumont		
Ledbetter, L. H.	388 Pearl St.	General radiology
White, C. M.	595 Orleans St.	Roentgenology
Dallas		
Bailey, Cornelius O.	1719 Pacific Ave.	General radiology
Beaver, N. B.	1719 Pacific Ave.	General radiology
Martin, Charles L.	1719 Pacific Ave.	General radiology
Martin, J. M.	1719 Pacific Ave.	General radiology
Spangler, Davis	4105 Live Oak St.	General radiology
Eastland		
Caton, J. H.	.....	Roentgenology
El Paso		
Cathcart, J. W.	114 Mills St.	General radiology
Mason, C. H.	114 Mills St.	General radiology
York, M. N.	Stanton and Texas Sts.	Roentgenology
Fort Worth		
Bond, Tom B.	600 West 10th St.	General radiology
Hyde, X. B.	600 West 10th St.	General radiology
Jagoda, S.	1212 North St.	General radiology
O'Bannon, R. P.	1028, 5th Ave.	General radiology
Houston		
Harris, C. P.	1625 Main St.	Roentgenology *
Marquis, W. James	1215 Walker Ave.	Roentgenology
McDeed, W. G.	1215 Walker Ave.	Roentgenology *
McHenry, R. K.	1215 Walker Ave.	Roentgenology
Sauermann, Wm. O.	804 Travis St.	Roentgenology
Mineral Wells		
Yeager, Robt. L.	.....	Roentgenology
Orange		
Barr, Richard E.	.....	General radiology
San Antonio		
Barron, Wm. Marshall	705 E. Houston St.	Roentgenology *
Hamilton, W. S.	705 E. Houston St.	Diagnostic roent.
Lowry, R. H., Jr.	Station Hospital, Fort Sam Houston	Roentgenology
Ostendorf, W. A.	507½ E. Houston St.	Roentgenology
Sherman		
Henschen, G. E.	500 N. Highland Ave.	Roentgenology *
Temple		
Giles, Roy G.	213 W. Avenue G.	Roentgenology
Powell, Eugene V.	304 W. 22d St.	General radiology
Wilson, R. T.	213 W. Avenue G.	Roentgenology
Waco		
Jenkins, I. Warner	425 Austin Ave.	General radiology
Wichita Falls		
Wilcox, Clark A.	1300, 8th St.	Roentgenology *
UTAH		
Salt Lake City		
Kerby, James P.	9 Exchange Place	Roentgenology
VERMONT		
Burlington		
Caldwell, Nathan R.	Mary Fletcher Hospital	Roentgenology *
Robinson, Carl F.	266 Main St.	Roentgenology
Wilson, S. A.	150 Bank St.	Diagnostic roent.
Rutland		
Ball, C. F.	56 Merchants Row	Roentgen therapy Radium therapy
VIRGINIA		
Lynchburg		
Spencer, Hunter B.	726 Church St.	General radiology
Newport News		
Davis, R. A.	2901 West Ave.	Roentgenology
Norfolk		
Eley, Clayton W.	Hosp. of St. Vincent de Paul	Roentgenology *
Petersburg		
Clarkson, Wright	30 Franklin St.	General radiology
Richmond		
Flanagan, E. L.	116 E. Franklin St.	Roentgenology
Gray, Alfred L.	118 E. Franklin St.	Roentgenology
Hodges, Fred M.	1000 W. Franklin St.	General radiology
Talley, D. D., Jr.	501 E. Franklin St.	Roentgenology *
Whitehead, L. J.	501 E. Franklin St.	Roentgenology *
Roanoke		
Armentrout, John F.	30½ Franklin Rd.	General radiology
McKinney, Joseph T.	30½ Franklin Rd.	Roentgenology *
University		
Archer, Vincent W.	.....	Roentgenology
WASHINGTON		
Longview		
Hayes, Richard	1267 Commerce Ave.	Roentgenology
Seattle		
Bourns, Frank S.	509 Olive St.	General radiology
Dwyer, Maurice F.	1115 Terry Ave.	General radiology
Garhart, Manch N.	1305, 4th Ave.	General radiology
Holtz, Kenneth J.	922, 2d Ave.	Roentgenology
Koenig, Carl E.	509 Olive St.	Roentgenology
Nichols, H. E.	1215, 4th Ave.	Roentgenology
Snively, J. Howard	509 Olive St.	Roentgenology *
Thompson, H. B.	1305, 4th Ave.	General radiology
Thomson, Curtis H.	1305, 4th Ave.	Roentgenology *
Spokane		
Aspray, Joseph	407 Riverside Ave.	Roentgenology
Betts, Arthur	407 Riverside Ave.	General radiology
Ward, Chas. B.	407 Riverside Ave.	General radiology
Tacoma		
Fishel, C. R.	740 St. Helens Ave.	Roentgenology
McCarty, E. D.	740 St. Helens Ave.	Roentgenology
Walla Walla		
Johannesson, C. J.	1 W. Main St.	Roentgenology
Yakima		
Cornett, Geo. W.	321 E. Yakima Ave.	Roentgenology *
WEST VIRGINIA		
Charleston		
Lambert, A. C.	240 Capitol St.	Roentgenology
Fairmont		
Francis, Charles T.	Cook Hospital	Roentgenology
Hollidays-Cove		
Davis, Geo. H.	.....	Diagnostic roent.
Huntington		
MacKenzie, A. R.	935, 4th Ave.	Roentgenology *
Vinson, L. T.	317, 9th St.	Roentgenology
Parkersburg		
Boice, Ralph Homer	717 Ann St.	Roentgenology
Rose, Lonzo O.	510½ Market St.	General radiology
Wheeling		
Bippus, E. S.	77, 16th St.	Roentgenology
Clovis, C. C.	Ohio Valley General Hosp.	General radiology
Kalbfleisch, W. K.	58, 16th St.	Roentgenology
Quimby, Will A.	1401 Market St.	General radiology

WISCONSIN

NAME	ADDRESS	TYPE OF SERVICE
Appleton		
McGrath, E. F.	114 W. College Ave.	General radiology
Beloit		
Wilson, Russell F.	Beloit Municipal Hospital	General radiology
Eau Claire		
Baird, J. C.	401½ S. Barstow St.	Roentgenology
Green Bay		
Olmsted, Austin O.	205 E. Walnut St.	General radiology
Troup, R. L.	306 Cherry St.	Roentgenology
Janesville		
Kuegle, F. H.	19 S. Main St.	Roentgenology
Snodgrass, T. J.	500 W. Milwaukee St.	Roentgenology Radium therapy
Kenosha		
Bowing, Irwin E.	625, 57th St.	Roentgenology
Sokow, Theodore	723, 58th St.	General radiology
LaCrosse		
McLoone, J. E.	319 Main St.	Roentgenology
Madison		
Littig, Lawrence V.	925 Mound St.	Roentgenology
Pohle, E. A.	1300 University Ave.	General radiology
Sisk, J. Newton	16 S. Henry St.	Roentgenology Radium therapy
Marshfield		
Potter, R. P.		Roentgenology
Milwaukee		
Altenhofen, A. R.	114 Wisconsin Ave.	Roentgenology
Baumgarten, S.	205 E. Wisconsin Ave.	Roentgenology
Epperson, Paul S.	324 E. Wisconsin Ave.	Roentgenology
Habbe, John Edwin	231 W. Wisconsin Ave.	Roentgenology
Podlasky, Harry B.	536 W. Wisconsin Ave.	Roentgenology
Zmyslony, W. P.	931 W. Mitchell St.	Diagnostic roent.
Neenah		
Greenwood, S. D.		General radiology
Salem		
Fletcher, Wm.		Roentgenology
Superior		
Saunders, Geo.	1501 Tower Ave.	Roentgenology
Waukesha		
Peterson, Geo. E.	831 N. Grand Ave.	Roentgenology

CLINICAL LABORATORY SERVICE IN THE UNITED STATES

Following is the sixth annual presentation of clinical laboratory data by the Council on Medical Education and Hospitals of the American Medical Association. It includes the "Essentials of an Approved Clinical Laboratory," and the list of pathologists conducting approved clinical laboratories. The former reports have appeared annually in the Hospital Number of THE JOURNAL, usually the last issue in March of each year.

ESSENTIALS OF AN APPROVED CLINICAL LABORATORY

DEFINITION

A clinical pathologic laboratory is an institution organized for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods, for the purpose of ascertaining the presence, nature, source and progress of disease in the human body.

Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved.

LOCATION, HOUSING AND EQUIPMENT OF THE LABORATORY

The housing and light should be adequate for the proper functioning of the laboratory. The equipment should be sufficient to permit all essential technical procedures to be properly carried out.

SCOPE

A general clinical laboratory should be prepared to render the following services:

(*a*) Hematologic: Blood counts, blood groupings and coagulation tests, and tests for blood parasites in general.

(*b*) Biochemical: Qualitative and quantitative analyses of urine, blood, gastric contents, body fluids, feces, intestinal contents and cerebrospinal fluids; renal and hepatic function tests and basal metabolism.

(*c*) Bacteriologic: Bacteriologic diagnoses; preparation of vaccines and blood and body fluid cultures.

(*d*) Serologic: Serologic diagnoses; agglutination, complement fixation, or precipitin and lysis tests.

(*e*) Pathologic: Preparation of paraffin, celloidin, or frozen sections, microscopic and gross pathologic specimens and necropsies.

(*f*) Parasitologic: Protozoal and zoological diagnoses.

PERSONNEL

(*a*) *The Director.*—The Director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry, or other allied subjects for at least three years subsequent to graduation. He must be a man of good standing in his profession.

The Director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work.

The Director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years subsequent to graduation from medical college, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports.

Where the Director is not a licensed physician the laboratory shall issue no reports containing diagnoses and prognoses, unless such diagnoses and prognoses are made and signed by a staff physician having the qualifications specified above for a medical director.

(*b*) *Assistants.*—The Director may have a corps of qualified assistants and technicians, responsible to him, and for whom he is responsible to carry out promptly, intelligently and accurately the several kinds of service the laboratory offers. All their reports, not only of tissues but also of all bacteriologic, hematologic, biochemical, serologic and pathologic data, should be made to the director.

REPORTS

An approved clinical laboratory should make its reports through the director. If the director is not a physician, any report making diagnoses or prognoses shall carry also the signature of the staff physician, and such reports shall be made solely to the physician in charge of the patient. All blanks for reports and other documents should have the name of the director printed on them, and if of a diagnostic or prognostic character, the name of the staff physician also.

RECORDS

Full records of all examinations made by the laboratory, suitably indexed and filed, are essential. Every specimen analyzed in the laboratory should be given a serial number, which should follow that specimen in the records and reports. When the laboratory report concerns a hospital patient, an exact transcript of the laboratory record should be appended to the hospital case record. Each specimen submitted to the laboratory should have appended pertinent clinical data.

LIBRARY

The laboratory should be provided with, or have convenient access to, a library including current scientific books and journals on all the various subjects required in its work.

FEES

There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group.

PUBLICITY

Publicity of an approved clinical laboratory should be in professional good taste and be limited to statements of fact, as the name, address and telephone number of the laboratory; names and titles of the director and other active responsible personnel; fields of work covered; office hours; directions for sending specimens, etc., and should not contain misleading statements or claims of unusual superiority. It should not advocate

medical fads nor lay undue stress on the importance of laboratory findings.

Only the names of those rendering regular service to the laboratory should appear on letterheads, or any other form of publicity as being connected with the laboratory.

Advertising matter should be directed only to physicians either through bulletins or through recognized technical journals, and never to the nonprofessional public, as, for example, by announcements in popular journals and periodicals, circulars, pamphlets, telephone lists or other means.

PATHOLOGISTS CONDUCTING APPROVED CLINICAL LABORATORIES

The following list contains the names of 183 qualified pathologists who are conducting clinical pathological laboratories that are approved as meeting the "Essentials of an Approved Clinical Laboratory." This list was prepared by the Council on Medical Education and Hospitals of the American Medical Association. It is published for the convenience of physicians and contains only those that do a general clinical laboratory work for the profession in the community.

By recent action of the Council, however, the privilege of approval is now being extended to all physicians specializing in clinical pathology and conducting clinical pathological services that meet the "Essentials,"—whether connected with a hospital, an independent laboratory or otherwise. Supplementary lists appear from time to time in THE JOURNAL.

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Bettin, Mona E., Director, Clinical Laboratory, 727 W. 7th St.

Bonynge, C. W., Director, Clinical Laboratory, 2007 Wilshire Blvd.

Brem, W. V., Zeiler, A. H., Hammack, R. W., and Maner, G. D., Directors, Clinical Laboratory, 523 W. 6th St.

Hill, R. B., Director, Moore-White Clinic Laboratory, 511 S. Bonnie Brae.

Setzler, Geo. B., Director, Clinico-Pathological Laboratory of Drs. Butka and Setzler, 1052 W. 6th St.

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Sumerlin, Harold S., Director, Rees-Stealy Clinic, 2001, 4th St.

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Oliver, Harry R., Director, Oliver-Knapp Clinical Laboratory, 490 Post St.

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Victors, Ernst A., Director, Diagnostic Laboratories, 490 Post St.

Santa Ana

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Klugh, Geo. F., Director, Laboratories of Drs. Bunce, Landham and Klugh, 139 Forrest Ave. N.E.

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Moore, Josiah J., Director, National Pathological Laboratories, 55 E. Washington St.

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Nicoll, H. K., Director, Gas Building Laboratory, Inc., 122 S. Michigan Ave.

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Brotherhood, James S., Director, Clinical Laboratory, 116 E. Fulton St.

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Litterer, J. H., Director, Private Laboratory, 706 Church St.

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Corsicana

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Carter, Chas. F., Director, Carter's Clinical Laboratory, 1717 Pacific Ave.

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Houston

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SATURDAY, MAY 23, 1931

THE "HUNGER STRIKE" OF CHILDREN

The appetite of children is normally good. Complaints of loss of appetite are not readily correlated as a rule with definite objective signs of physical or physiologic abnormality; hence they present a problem of considerable difficulty to parents and their medical advisers. Anorexia has been defined as a subjective complaint of constant loss of appetite persisting long enough to cause objective signs of malnutrition. According to Bartlett's [1] studies at the Massachusetts General Hospital, anorexia far exceeds all other presenting symptoms in its incidence in children seen in the outpatient department. The five commonest reasons for bringing children to the outpatient clinic were loss of appetite, cough or cold, physical examination for admission to public school, pallor, and underweight. Such facts offer a challenge that has been answered in various ways in recent years. The psychologists have made diverse proposals regarding the establishment of habits. Doubtless this aspect of the subject warrants careful investigation in the management of what is nowadays frequently designated as the "hunger strike." The pediatrician will usually seek his clues for corrective advice amid possible biologic defects.

Numerous studies have been directed to cultivating the appetites of children.[2] Lucas and Pryor [3] of San Francisco have recently suggested possible associations of body build with the "hunger strike." Measurements of girth and diameter of the trunk, correlated with stature, weight and age, established the fact that in their patients the children who habitually did not eat had small and delicate bony frameworks, as compared with an equal number of other children of the same age and sex. These individuals in a large preponderance of cases exhibited what Stockard [4] has differentiated as the linear build. Every child classified in that way was from 0 to 10 per cent taller than the average for that age and from 7 to 30 per cent under the average weight assigned for that height and age. Obstinate constipation had a high correlation with poor nutrition in the linear type. Fatigue and irritability were characteristic of the most poorly nourished children. There are, of course, often actual pathologic conditions associated with anorexia. The commonest of these are, according to Bartlett, septic tonsils and adenoids, acute infectious diseases, tuberculosis, pyelitis and dental caries. Obviously, such conditions must be remedied under any circumstances to restore normality in every respect in children.

The linear build disorder has reference to entirely different problems of a constitutional sort. It frequently involves gastric atony with delayed emptying time of the stomach and diminished secretion. The stomach tends to be low. According to Lucas and Pryor it seems reasonable that children of the linear type, who possess less abdominal musculature than children of the lateral type and whose small, perpendicularly placed stomachs exhibit a tendency to slow emptying, should be given diets that will tend to decrease rather than promote the inevitable consequences. This means the comparative exclusion of foods rich in fats, which naturally pass out of the stomach slowly. Analyses of diets revealed that mothers whose children were of the linear type were much more likely than others to offer diets containing high proportions of fat in their efforts to force these children to attain the average weight for height and age. Constipation is a common sequel of anorexia. In the asthenic child a diet of low residue successfully combats persistent constipation associated with mild distention of the colon. The program outlined hits at one of the most lauded dictums of child nutrition—the "quart of milk per day." Lucas and Pryor join the procession of those who believe that milk should be eliminated from the diet, or be greatly reduced in amount, as a first step in dealing with anorexia. In fairness it should be pointed out that, according to recent observations by Siemsen [5] at the University of Minnesota, excessive milk feeding over a short period has little or no influence on gastric motility in children nor does it produce an unfavorable effect on appetite. This author was, however, not dealing with children on a "hunger strike." The substitution of liberal allowances of fruit juices, rich in certain vitamins, is said to have a stimulating effect on appetite. In cases of persistent functional anorexia a mild anemia is frequently present, and it is impossible to say whether the children are anemic because of their loss of appetite or whether they have lost their appetite

1. Bartlett, W. M.: An Analysis of Anorexia, Am. J. Dis. Child. **35**: 26 (Jan.) 1928.

2. Schlutz, F. W.: The Problem of Chronic Anorexia in Childhood, J. A. M. A. **94**: 73 (Jan. 11) 1930. Sauer, L. W.; Minsk, L. D., and Alexander, W. G.: Gastric Findings in Children with Anorexia, ibid. **79**: 184 (July 15) 1922. Aldrich, C. A.: Cultivating a Child's Appetite, New York, Macmillan Company, 1927. Garland, Joseph: The Hunger Strike in Infants, New England J. Med. **200**: 1135 (May 30) 1929.

3. Lucas, W. P., and Pryor, Helen B.: Factors Involved in Combating the "Hunger Strike" in Children, Am. J. Dis. Child. **41**: 249 (Feb.) 1931.

4. Stockard, C. R.: Constitution and Type in Relation to Disease, Medicine **5**: 105 (May) 1926.

5. Siemsen, W. J.: The Influence of Excessive Milk Feeding on Gastric Motility and Its Relation to Chronic Anorexia, Am. J. Dis. Child. **41**: 291 (Feb.) 1931.

because they are anemic. Bartlett has therefore included liver, kidney and meat in the diet of the child. There are, of course, the additional features of adequate rest and exclusion of emotional stimuli to be associated with the regimen outlined. The need of assuming a definite neurosis in chronic anorexia thus becomes a remote possibility.

STATUS LYMPHATICUS

In 1614 Plater[1] reported a sudden death without apparent cause in a child, aged 5 months, in whom an enlarged thymus was the only abnormality observed at necropsy. In 1889 Paltauf[2] described status lymphaticus as a decreased resistance of the body to shocks or injuries dependent on a specific constitutional anomaly shown anatomically by prominent thymic and lymphatic tissue. This conception has been generally accepted. The thymus will atrophy from many causes, such as inanition, disease and exposure to the x-rays. Hammar,[3] studying the unatrophied thymus, determined its normal size and weight at various ages. The gland grows until puberty, after which it gradually decreases in size.

A committee, which has recently been investigating status thymicolymphaticus (or status lymphaticus) under the British Medical Research Council,[4] has just made available observations on 680 cases that came to the attention of coroners. They were unable to find any constant enlargement of the thymus in deaths in which the cause was not adequately explained. A constant relationship between the weight of the thymus and the lymphatic tissue was not found. The average weight of the thymus was above normal in subjects with exophthalmic goiter. The arterial hypoplasia that has been described in association with an abnormally large thymus was not demonstrated in this series. They conclude that there is "no evidence that the so-called 'status thymico-lymphaticus' has any existence as a pathological entity." Hammar[3] and Greenwood and Woods[5] have drawn similar conclusions in recent articles. Boyd[6] declares that the anatomic picture described by Paltauf "represents the normal thymus and lymphatic tissue of the well nourished child." Marine,[7] however, in his recent review of the subject, criticizes the work of Greenwood and Woods, declaring that they considered only the thymus, which is not always enlarged in status lymphaticus. Yet he admits that the size of the thymus and lymphatic tissue represents the lymphoid reaction of the individual at any time and that the thymus and lymphatic tissue may or may not be enlarged at the time of death in status lymphaticus. One must conclude, then, that if status lymphaticus does exist there are no known pathologic characteristics which are distinctive. The special liability death remains as the one undisputed characteristic on which the diagnosis of status lymphaticus has been made.

Boyd has investigated several cases of sudden death in children having large thymuses. Chemical examination of the stomach contents proved that one death was due to poisoning; in another case, electrocution was found to be the cause of death. Kennedy and New[8] reported a death during anesthesia of a patient who showed a large thymus and prominent lymphatic tissue. This death would have been ascribed to status lymphaticus if a stain for fat had not revealed numerous fat emboli in the lungs. Probably pathologists seeing prominent thymic and lymphatic tissue have often been satisfied with the diagnosis of status lymphaticus when a thorough search would have revealed a more satisfactory cause of death. Whether or not adequate cause for death can be found in all such cases is a question that must be decided by further study. If there is a group of people who die from causes too trivial to injure seriously a normal individual, definite clinical and pathologic characteristics for the group should be discovered. In the meantime, health departments should carefully investigate all deaths diagnosed as due to "status lymphaticus."

THE TONSILS IN CHILDHOOD

The story of medicine abounds in instances indicating interrelationship between some dramatic cure and coincident medical or surgical intervention. In many of these cases the unquestionable association of cause and effect is convincingly established. There are not a few instances, on the other hand, in which the logic of *post hoc ergo propter hoc* can be effectively assailed. Coincidence plays a part all too often overlooked or disregarded in practical therapy. These comments are a foreword to a consideration of the modern claims for tonsillectomy.

Intense interest in the function of the tonsils belongs to the present century. Hypertrophy of this lymphoid tissue gives rise to symptoms causing obstruction to breathing or swallowing. Infection of the tonsils has been considered a focus for numerous diseases in adjoining organs or for general systemic infections. Admittedly when hypertrophy of the adenoid and tonsillar tissue exists, causing obstructive symptoms, the surgical removal has been of undoubted benefit. This is true when the breathing is somewhat impaired and the speech is muffled or abnormal. The tonsils also deserve careful consideration as foci for local or systemic infec-

1. Plater, F.: Observationum in hominis affectibus plerisque, alvi tres, Basileae, 1614.
2. Paltauf, A.: Wien. klin. Wchnschr. **2**: 877, 1899; **3**: 172, 1890.
3. Hammar, J. A.: Der Menschenthymus in Gesundheit und Krankheit, Ztschr. f. mikroscop. anatom. Forschung., I Supplement to volume 6, 1926; II Supplement to volume 16, 1929.
4. Young, M., and Turnbull, H. M.: J. Path. & Bact. **34**: 213 (March) 1931.
5. Greenwood, M., and Woods, H. M.: J. Hyg. **26**: 305 (Aug.) 1927.
6. Boyd, Edith: Growth of the Thymus, Am. J. Dis. Child. **33**: 867 (June) 1927.
7. Marine, David: Status Lymphaticus, Arch. Path. **5**: 661 (April) 1928.
8. Kennedy, R. L. J., and New, G. B.: Chronic Stridor in Childhood, J. A. M. A. **96**: 1286 (April 18) 1931.

tions. To those persons who assign a real function to the tonsils—something more than to act as "a catch-basin for germs"—the possibility of actual harmfulness in the removal of the tonsils looms large. Kaiser [1] of Rochester, N. Y., who has had unusually large experience in this field for many years, has recently ventured the cautious comment that the relationship of the tonsils and adenoids to the common infections in children is not so easily demonstrated. From the standpoint of the prevention of disease, it is important to study this relationship. If the tonsils and adenoids were removed only from the children who have mechanical obstruction in the nasopharynx, there would be no room for doubt as to the advisability of tonsillectomy. It so happens, however, he continues, that this operation is performed on many children because of suspected infection in either adenoid or tonsillar tissue or in both. The justification of this operation depends on the ultimate influence of the removal of the tonsils on the infections that subsequently develop in the child.

The records of a controlled study of 4,400 children over a ten-year period, now available for critical consideration, were discussed at the second International Pediatric Congress in Stockholm last August. Kaiser, who was responsible for the investigation, has pointed out that, in order to justify any conclusion from the study of tonsillectomized children, children used as controls have been subjected to the same scrutiny throughout their school years. The children selected for the study had had the tonsils and adenoids removed at ages varying from 4 to 7 years. The previous history pertaining to the infections was obtained, and their physical status was known at the time of operation. At intervals of one, three and ten years subsequently, they were reexamined and an accurate record of their infections was made. At the same time a like number of children of the same ages used as controls were examined and followed up. These children presented the same indications for operation as were given in the group actually operated on but for various reasons, usually parental objection, were not subjected to operation. Kaiser now suggests that certain infections have a close relationship to the presence or absence of tonsils and adenoids. Other infections are not influenced favorably or unfavorably by the presence or absence of this lymphoid tissue. A few infections seem definitely more common in the absence of tonsils. The favorable outcome includes colds in the head, sore throats, cervical adenitis, otitis media, rheumatic disease, diphtheria, scarlet fever, nephritis and dental infections. The other categories scarcely warrant any enthusiastic reference even on the statistical basis of "force of numbers." Tonsillectomy may actually be unfavorable to the incidence of bronchitis and pneumonia in childhood.

1. Kaiser, A. D.: The Relation of Tonsils and Adenoids to Infections in Children, Am. J. Dis. Child. **41**: 568 (March) 1931.

Such experiences secured on a large scale under carefully studied conditions properly direct attention to the superlative importance of careful individual consideration in every case. "Mass production" methods, with which the practice of tonsillectomy has been charged by many of its recent critics, has no place in the consideration of the tonsil and adenoid problem of children. The wholesale extirpation of tissues in school groups or institutional classes on the basis of a semiroutine hasty examination and "statistical conviction"—usually an uncritical expectation of benefit—has no warrant whatever today. The occasional death is a grim warning of the operative risk, small though it may be when expressed in percentages. Kaiser himself has sounded a keynote of warning in relation to the vague manifestations glibly classed as malnutrition:

> Malnutrition in children, often associated with infections, was studied in 36,000 school children with reference to the presence or absence of the tonsils and adenoids. In individual cases a striking relationship was noted between malnutrition and infection of the tonsils. That relationship, however, does not hold true when large groups of children are surveyed. Malnutrition based on the height-weight relationship, with due consideration to the musculature of the child, occurs in children whose tonsils and adenoids have been removed both for long and for short periods. When large groups of tonsillectomized children and children who have not undergone tonsillectomy are compared as to nutritional status, it is found that there are only a few more children, 10 per cent or more, underweight among the nontonsillectomized children.

Current Comment

PEPPER AND GASTRIC ULCER

Although a century has elapsed since Cruveilhier in 1829 first clearly described peptic ulcer, it would be rash to venture any conclusions at the present time regarding the precise etiology of this pathologic condition. Cause and effect have often been confused in the discussions of the disorder. Distinctions between primary and secondary manifestations have not always been clearly made. At present, for example, trauma is not generally believed to play a noteworthy part in the genesis of peptic ulcer because, it is said, few of the persons who subject their stomachs to mechanical, chemical or thermic insults suffer from ulcers. Traumatically produced experimental ulcers heal readily, as a rule. Accordingly, many writers have sought other underlying causes, such as infections, interferences with the circulation and even anaphylactic phenomena, which produce conditions that irritants tend to aggravate and thus prevent successful healing. A surprising instance of such a possibility has recently been reported by Bergsma [1] from Abyssinia. He was confronted by the exceptionally high incidence of gastric and duodenal ulcers among the black people there in contrast with the comparative immunity of Negroes in this country. The most conspicuous differences between the two groups is their diet. Bergsma pointed out that the chief

1. Bergsma, S.: Gastric and Duodenal Ulcer in the Black People of Abyssinia, Arch. Int. Med. **47**: 144 (Jan.) 1930.

articles of diet are a heavy sour bread and a sauce that is approximately 50 per cent cayenne pepper. The sour bread is in the form of an immense thin pancake; part of it is broken off, rolled up in the form of a cornucopia, plunged into the pepper sauce so that a few tablespoonfuls of the sauce fill the cone, taken into the mouth and, almost without mastication, washed down with copious drafts of honey-water. Large doses of capsicum (cayenne pepper) are known to produce severe irritation of the gastro-enteric tract.[2] When one considers, Bergsma adds, that, from the time native babes are weaned, approximately at the age of 2 years, until old age, the diet contains monotonously the same dishes of sour bread, pepper sauce, mildly intoxicating drinks and occasional beans, peas and slightly cooked or raw meat, it is not surprising to find disturbances of the stomach a common occurrence and, at an early age, a contracted and scarred pylorus. In any event the opportunity for continued chemical insult to the gastric mucosa seems to be afforded by the unusually high red pepper content of Abyssinian diet. If such peculiarities of dietary regimen are common in other countries, it would be of great interest to ascertain the incidence of gastric ulcer among their inhabitants.

SCIENCE AND THE ADVERTISER

THE JOURNAL has remarked frequently and emphatically concerning the manner in which health claims are exploited in modern advertising. Support now comes from *Printers' Ink*, widely recognized as a journal for advertisers. It is anxious to establish a "Forget Scientists Week":

> Perhaps you have been so foolish as to think that scientists worked at the business of science. Not so. They test cigarettes, tell frightened mothers about breakfast food, warn young men against the dangers of something that usually ends with -osis. Now and then, to be sure, they make an epoch-making discovery which will bring about an astounding revolution in the manufacture of nine-count, full-fashioned galoshes. In short, they are scientists of the advertising pages.

Printers' Ink recognizes the dismay that has been aroused in scientists generally by the exploitation of pseudoscience in advertising. It ridicules those who are now preparing copy for advertisements in modern periodicals because they are so utterly lacking in originality that they follow one another in the attempt to secure from scientists selling ideas for a variety of products. Like THE JOURNAL, *Printers' Ink* issues a special warning to the advertisers of toilet goods and cosmetics. In this field pseudoscience has been used to exploit values that simply do not exist. Here *Printers' Ink* says:

> Cancer can't be cured with face creams. Divorce evils can't be remedied with face powders. Passionate perfumes and wedded bliss aren't synonymous. Acrimonious advertising isn't the road to public belief. Pseudoscientific claims make a weak foundation for a lasting business.

It is always better for any profession or industry to purge itself of unethical conduct and unsatisfactory ideals than to have such cleansing forced on it by the government or by the inevitable reaction of the public. Advertising in the periodicals of the United States has gone to lengths that have opened it to ridicule and censure. It would seem to have reached the apotheosis of blatancy and folly. Strange that the innumerable attacks made in recent years have not sooner penetrated to those responsible. The recognition of the danger inherent in the situation, exemplified by the comments in *Printers' Ink*, gives hope that the awakening is near.

2. Bergsma has written: "My first native meal of bread and pepper sauce caused numerous herpes blisters about the mouth, and I have since eaten it only occasionally and then diluted."

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

May 25. Good Posture: To Have and to Hold.

Five minute health talks may be heard over the Columbia Broadcasting System on Monday, Wednesday and Thursday, from 1 to 1:05 p. m. daylight saving time.

The program for the week is as follows:

May 25. Biology: The Science of Life.
May 27. The Family Doctor and the Surgeon.
May 28. Chemistry Then and Now.

THE PHILADELPHIA SESSION

American Medical Golfing Tournament

The American Medical Golfing Association has just been elected a member of the United States Golfing Association. The seventeenth tournament of the American Medical Golfing Association, June 8, at the Aronimink Country Club at Philadelphia, will comprise the playing of thirty-six holes, followed by a dinner and presentation of prizes. The latest addition to the trophies, for which the players will contend, is the Ben Thomas Cup, to be presented by friends of the late Ben Thomas, who was president of the Golfing Association in 1929. There are seven major events, each with its own trophy, and with second, third and fourth prizes. Membership in the Golfing Association is open to any male Fellow of the American Medical Association in good standing. The fee of $5, to be paid on enrolment, perpetuates the membership: "Once a member, always a member." There is also a playing fee of $2 for the tournament fund of the association, which is paid only in the event that a member enters the tournament. Entries for this tournament will close, June 1. Requests to enter the tournament until that time should be sent to the executive secretary, W. J. Burns, 1124 Maccabees Building, Detroit. After that date entries will be received by Dr. John Welsh Croskey, 405 Medical Arts Building, Philadelphia, provided the limit of the course shall not have been reached. The Aronimink Country Club is one of the newest and most beautiful around Philadelphia. Fellows will be allowed to play a practice round before the tournament on the course on presentation of their membership cards in the American Medical Golfing Association and on payment of the green fee of $3.

Fraternity Luncheon

The members of the Alpha Mu Pi Omega Medical Fraternity are invited to a luncheon at the Penn Athletic Club, Eighteenth and Locusts streets, at 12:45 p. m., Wednesday, June 10, as guests of the Philadelphia chapter.

Medical Women's Banquet

All medical women visiting Philadelphia during the annual session of the American Medical Association are invited to be guests of the women physicians of that city and vicinity at a banquet at the Bellevue Stratford Hotel, Monday, June 8, at

7 p. m. Those expecting to attend should notify Dr. Ruth Hartley Weaver, 1433 Spruce Street, Philadelphia, by June 1.

Clinic on Dermatology

Preceding the opening of the section programs, on Tuesday, June 9, at 2 p. m., there will be a clinic for the members of the Section on Dermatology and Syphilology at the College of Physicians, located on Twenty-Second Street between Market and Chestnut streets.

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Twenty-Seventh Annual Meeting, held in Chicago, Feb. 16, 17 and 18, 1931

(Continued from page 1703)

DR. HARRY E. MOCK, Chicago, in the Chair

AMERICAN CONFERENCE ON HOSPITAL SERVICE

FEBRUARY 18—MORNING

CONVALESCENT CARE

Convalescent Care in the United States

E. H. LEWINSKI CORWIN, PH.D., New York: Following the conference on convalescent care held here a year ago a committee was appointed to make a study of convalescent care in the United States. It was thought best to begin by compiling data for a national directory of convalescent homes to indicate what progress had been made in the three years since the publication of the last directory. Visits on the part of a trained observer were out of the question on account of lack of funds. Thereupon, the method of eliciting facts by questionnaire was resorted to. The data deal with 175 institutions, all of which are found in twenty-three states and in the District of Columbia. There are twenty-five states which, to the best of our knowledge, have not made any provision whatever for institutional convalescent care. As far as our search has revealed, these 175 homes constitute the entire extent to which the institutional convalescent facilities exist in the nation for the after-illness care of the type of patients with which we are concerned, and the number of these I estimate conservatively to be two million people a year. We separated the institutions into three groups: group A, institutions in which no charge of any kind is made; group B, institutions which are part pay or in which a nominal charge is made if patients are able to pay, or where voluntary contributions are accepted, and group C, proprietary institutions with maximum charges of not more than from $30 to $40 a week. Of the 175 homes, 85, or approximately one half, are what might be considered strictly convalescent homes. In the 148 institutions of groups A and B there are 8,076 beds and in the 27 institutions of group C there are 593 beds, an aggregate of 8,669 beds, of which 6.8 per cent are in proprietary institutions. The 85 strictly convalescent homes have a total capacity of 4,267 A and B beds and 159 C beds, a total of 4,426 beds, of which 3.6 per cent are in proprietary institutions. Designated as definitely reserved for adults are 1,841, or 21.3 per cent, of the 8,669 beds, and 4,479, or 51.6 per cent, are placed for the exclusive use of children. A total of 2,349 beds, or 27.1 per cent, were tabulated as unclassified. Probably about 10 per cent of the beds in the unclassified group are for children, bringing the convalescent facilities for children up to 60 per cent of the total supply. The patients most frequently excluded are those with diseases of the neuromental type. As many as 58 per cent of the institutions do not take such cases; contagious disease cases are excluded in 38 per cent of the institutions; certain cardiac conditions in 29 per cent; surgical conditions requiring dressings are not admitted in 25 per cent; those requiring special dietary care in 22 per cent; asthma in 20 per cent, and bed patients are excluded in 17 per cent. The majority of the institutions are of less than 60 beds in capacity. About half of them are less than 40 beds.

The average number of nurses per institution of up to 40 beds is about 1.6; for those of 61 to 100 beds, about 4 per institution; but some institutions as large as 150 or more beds have only one or two trained nurses, and one institution as large as 300 or more beds reports only three trained nurses. Resident physicians are employed in 25, or 15 per cent, of the 169 institutions concerning which such information was supplied, and 139, or 82 per cent, have either attending physicians or physicians on call, while only 6, or 3 per cent of the total, report no definite provision for medical attention. The sad neglect of provision for convalescent care must be laid at the door of the medical profession. There has not been enough insistence on the part of the profession on the need of these supplementary facilities because, for the last few decades, all medical thought has been concentrated almost exclusively on new scientific conquests and the improvement of methods of diagnostic and technical procedures in medicine and surgery. This has resulted in a phenomenal advance of the science of medicine and has, no doubt, redounded greatly to the benefit of suffering humanity. There is, and should be, no let up in scientific endeavor; all the funds necessary for research at the hands of qualified workers should be put at their disposal, but the humane side of the care of the sick should not be allowed to suffer thereby. All the gains of medicine should be consolidated and put to useful purpose. The neglect of the patient right after he has passed the critical phase of an acute illness or a devastating severe operation has only too often been short of shocking. I believe that a systematic educational and promotional effort should be made on our part to stimulate and to expedite developments. The need of a convalescent home association, with a paid executive officer, seems to me essential, either as an independent body or as an integral branch of some well organized association.

Possibilities for Nursing Service in Convalescent Care

MABEL W. BINNER, R.N., Chicago: The convalescent patient should not remain in the hospital if he can receive the necessary care elsewhere. Hospital care is costly, whether borne by the patient or by the community. Convalescent care can be provided at from one-half to one-third the cost of hospital care, and the hospital atmosphere is not conducive to the best results. A convalescent ward or building adjoining the hospital has been suggested. The convalescent ward or building may be the solution of the present problem. At the Children's Memorial Hospital we have a convalescent ward, on the top floor of our main building. Patients are never admitted directly to this ward. No ward has required more careful consideration than this one. The nurse in charge must understand the exact combination of firmness and leniency to be used. Many old ideas, particularly with reference to diet, have been discarded; midmorning nourishments were discontinued with the result that appetites improved.

Requirements for convalescence in the home are sun and fresh air, quiet and rest, adequate food, and recreation or occupation. In many cases these needs can be met, and where nursing service is necessary this can be carried out by either the visiting nurse or the hourly nurse. Many convalescent patients are asked to return to the hospital or clinic for simple dressings or other treatments, which should be referred to the visiting or hourly nurse. The young child presents a difficult problem where home conditions are poor. This child as a rule does not thrive in the larger institution regardless of the excellence of the care given. Foster home care is the ideal solution but is frequently difficult to secure as the parents in the poor home are usually unable to pay and the child-placing agencies in most cases have not been able to assume the financial burden. Boston has a well developed plan for the placement of the child needing medical supervision. In New York the Speedwell plan has been successful. There are less than 200 convalescent beds in or near Chicago providing general convalescent care. The convalescent ward in the hospital will not entirely meet the need, nor will the patient's home. The country affords opportunity for quiet and outdoor activity which cannot be obtained in the city. Whether each hospital should provide its own country home or whether this should be a community project is debatable. At present we are holding our patients in the hospital or they are remaining at home, either because there are no convalescent beds available, or because the existing homes cannot care for that type of patient.

The nursing profession as a group must recognize this need. Each individual must at least know the condition in her own community. The burden should not fall on the public health group and the medical social worker. Until we think convalescent care is as much a part of the care of the patient as is the daily bath, or temperature, our work will remain only half done.

Convalescent Care in the Chicago Area

DR. JAMES A. BRITTON, Chicago: The Chicago area has at present 142 hospitals with a total of 21,815 beds. Taking 3,500,000 as the population of Chicago and suburbs, this would mean that there is now one hospital bed for every 160 in population. Counting all existing convalescent beds of every type, there are now a total of 431, or one such bed for every 8,120 in population. The great majority of these beds, however, do not serve ordinary convalescent needs. There are four institutions with a combined bed capacity of 188 which can be said to give general convalescent care. While Chicago has a large number of summer camps and many organizations which arrange for outings for boys, girls and women, for the great majority of people sent to summer camps no provision is made for anything more than the conventional camp care. There are a number of institutions where children can receive convalescent care. There are a less number of places where women can receive convalescent care, but there is only one institution (the Presbyterian Convalescent Home) where a man can receive such care, and the beds available for men patients at this institution number less than ten. There is no hospital in Chicago, with the exception of that provided for orthopedic cases, which has an affiliated institution of any kind for convalescent care.

At present there are in Chicago several new plans for buildings in connection with existing hospitals, but in none of these building programs is there any consideration being given to the construction of a modern convalescent institution which might be built and operated in conjunction with new or additions to the existing hospital. Chicago should have at once a model convalescent hospital for adults. The original plant with 100 beds should cost $2,500 per bed, or a total of $250,000. Additional space in each pavilion should not cost over $1,000 per bed, or $350,000 for 200 beds. Maintenance for the first year should be not over $3 a day per patient. After the first year the cost should be less than $2 a day per patient.

DISCUSSION ON PAPERS OF E. H. L. CORWIN, MABEL W. BINNER AND DR. BRITTON

DR. HARRY E. MOCK, Chicago: The American Conference on Hospital Service, which meets annually in connection with the Council on Medical Education and Hospitals of the American Medical Association, is a rather unique organization. It really consists of only thirty-two members, because there are sixteen constituent members, each constituent member having two delegates to the conference. These constituent members are composed of national, medical, hospital, nursing, dietetic and other allied associations. The American Conference on Hospital Service started the library service bureau. It developed the first service bureau for hospitals ever known. It serves the entire world, judging from the fact that thirty-six different countries sent for our library budget. After we had that going a few years, we convinced the American Hospital Association that it was their job and they should take it over. We then took up, two years ago, this subject of convalescent care of the disabled, the first national meeting ever held on that subject. As a result, we have had a national committee on convalescent care working over the last two years with Dr. Lewinski Corwin as chairman, and we have had a local committee on convalescent care working here in Chicago with Dr. Britton as chairman. This year, in addition to the subject of convalescent care, we have added the subject of the rehabilitation of the disabled. So I feel that the American Conference on Hospital Service with its thirty-two members or delegates, but in reality with a membership greater than any other organization in existence because it has sixteen national organizations back of it, is gradually developing a few ideas that are spreading to these organizations and are becoming facts.

MISS SOPHIA POTGIETER, West Chicago, Ill.: Convalescent homes will never be a large field for nurses, but the field certainly is one that should be larger at the present time. The homes that are in existence do not employ as many graduate nurses as they should. Home conditions from which many of our patients come to us in hospitals have been responsible for bringing the patient to the hospital, so surely when they are not absolutely physically fit they are not able to cope with those conditions. We say convalescent care has cost so much less than hospital care, but it has probably been due to the fact of an inadequate staff. The length of convalescent care could be decreased by having our people in smaller groups.

JOHN A. LAPP, Milwaukee: One can talk about cost of medical care and about the needs of convalescent hospitals and other kinds of hospitals, but the problems will not be solved until some way is found to distribute the cost that comes to the people who must use these institutions. I have watched the Committee on the Costs of Medical Care carefully for evidence of a study of the distribution of the cost of medical care. They can investigate to the end of their days and they will not find any opportunity to reduce the cost of medical care. The cost of medical care is going to increase. A system is needed by which this cost can be so distributed that when a person is through in the hospital he can be removed to a convalescent home and stay there with means of support for himself and his family. The solution of this medical question, either the cost or the provision of convalescent homes, will not be found until the issue of health insurance based on a plan similar to the workmen's compensation insurance is faced. All other things are secondary to the provision economically for the men who need care throughout convalescence.

SAMUEL A. GOLDSMITH, Chicago: A definition of the aims of convalescent care is that they are dealing with people past the critical stage of their illness, endeavoring to give them proper care for a sufficiently prolonged time to return them to their usual vocations. Analysis of that definition reveals a conglomeration of aims and methods of technic that involve almost everything social, almost everything vocational, and certainly almost everything medical. In Chicago some years ago we made a study of our Jewish social agencies, hospitals and the other hospitals in the community and concluded that our group of 325,000 need 130 beds for convalescent care. That ratio would give 1 to every 2,500 in the population. On the same ratio Chicago as a whole would need about 1,400 beds, and according to the construction figure of Dr. Britton it would cost about $3,000,000 to provide those beds. That figure would, however, represent in terms of ratios about one-half the figures that Dr. Corwin presented here today because on the basis of 100,000 beds needed in the country at large, a population of about 250,000,000 would be estimated, which is a little more than twice the number of people that there are. The ratios do not hold water really because we have not convinced the physicians and surgeons who are involved with respect to the real need for convalescent care and treatment. If doctors have drummed into their consciousness the fact that here is an additional technic they can use for bringing patients back physically and economically, we shall have gained a great deal. If we think in terms of economic reconstitution of the individual, and his social rehabilitation as well as the physical rehabilitation, in terms of a community program and in terms of further education of the doctor so that he can definitely limit the number that really need convalescent care and save us from these fantastic estimates of moneys and beds that are needed, I think we shall get along in our program.

ALFRED C. MEYER, Chicago: Whether the community needs as large a program of convalescent care as has been outlined by the enthusiasts for convalescent care, I am rather doubtful. As far as I have been able to determine, it seems that a very fair percentage of patients sent to convalescent homes are more or less high pressured, to use the phraseology of business. It seems, from discussion with physicians, that their attitude seems to be, "Well, if the social worker insists that this patient go to a convalescent home, I am perfectly satisfied to send him." No doubt if the sick person as a whole would benefit by convalescent care the hospital would favor it, but let us not think of it as purely an economic help to the hospitals. I can assure you who are not in the hospital field that that is a fallacy.

JOHN WILDER, Chicago: The institution I represent is small, but we do good work. I have been impressed with the high cost of hospitalization. I do not see how young people can survive having children. It makes an awful dent in the exchequer. There are a great many other cases which are a terrible task on the human being. That through which we have been going industrially leaves me to wonder whether the whole fabric of things in this country has not got to come down on a much lower plane. The devoted care which the staff gives without remuneration is wonderful, the tremendous contribution the doctors of this country make toward the sick and the suffering of the community.

MISS ADDA ELDREDGE, Madison, Wis.: I had a letter from the Director of the American Nurses Association asking me to call attention to what the nursing profession is trying to do with regard to giving more care and better care at less cost to the people who need it. This letter is as follows:

> In the discussion on convalescent care at the meeting of the Hospital Conference, if you have an opportunity, will you state how much emphasis we are putting on intermittent or hourly nursing? We are working hard to get the nurse back in the home, because our registry shows that between 80 and 90 per cent of the calls are for hospital work. This tendency has been on the increase. Our chief concern in getting the nurse back into the home is for the convalescent.
>
> The nurse practicing on an intermittent basis can do so much for the pent-up convalescent not only in contributing to his physical well-being, but also in bringing sustenance for his spirit.

We want you to know that the nursing profession cannot do what the doctor can do. Although it is estimated that every private duty nurse works eight months in the year, gives one month's free service and is idle three months, she cannot give her services as the doctor can. The doctor can take care of many patients during the day and can take care of some of them for nothing because the others will pay well enough to allow him to; but, with the nurse, the sicker the patients and the less money they have the more they need her and the less other work she can do. She is trying to meet the needs of communities through this hourly nursing service.

DR. HOYT E. DEARHOLT, Milwaukee: There is a wonderful convalescent home connected with the Children's Hospital in Milwaukee. In the northern part of the state there is a convalescent hospital for the tuberculous, which is one of the oldest of its kind in the country. There is a lively interest in the national, state and local associations in the subject of aftercare in tuberculosis. Two years ago I suggested the possibility of our trying more than we had so far, to utilize some of the institutions, such as orphanages, which from a social point of view have outlived their need and which, it seems to me, with the adding of nursing service, medical service and social service would serve our purposes well without the need of soliciting large sums of capital for construction purposes.

DR. M. T. MACEACHERN, Chicago: There is another type of case closely related to what we strictly speak of as convalescent, the patient just out of bed, ambulatory case, which is a nuisance to the sick patient, and the sick patient is a nuisance to him. In studying convalescent care it would be well to look into the Jewish Hospital plan in St. Louis. They have built a convalescent home across the street from the hospital, believing that they can bring to the patient the recreational aspect of the convalescent home even there. Of course I think they are near a park. But the point is this, that with the young convalescent case, the ambulative case, as soon as he gets out of bed he can go over to this place and be close at hand to the service facilities and the scientific facilities. A hospital of 1,000 beds in a large community has a 120 per cent occupancy, and they were of the opinion that they needed a great deal of additions to that physical plant. The commission which studied the proposition, on which I had the honor to sit, found in that hospital 250 patients who could be removed immediately to a proper convalescent home, and 150 or 200 other patients who were just up and around also could be removed, giving a possible release of 400 to 500 beds in an acute hospital. I am not exaggerating that one bit. If we look at our big hospitals today and take the chronic case and the incurable case, and the strictly speaking convalescent case and the so-called preconvalescent case, the patient just out of bed, and in some hospitals the aged and infirm, we still have quite a group we should try to take care of and get out of the acute hospitals, not only for economic reasons but for physiologic reasons and scientific reasons.

DR. GOLDER L. MCWHORTER, Chicago: There is a need for two kinds of convalescent hospitals, one in the general hospital, and the other in the country. The convalescent quarters in the general hospital could be maintained more economically by an arrangement similar to a modern hotel but with medical and nursing care available when necessary. The convalescent quarters would be available to patients entering for diagnosis and observation, as well as those recuperating from illness. Relatives and friends could avail themselves of the hotel privileges. Economy and efficiency in both nursing and medical care should result. The country convalescent hospital would appeal only to a limited number of patients in a general hospital, owing to the desirability of frequent treatments by their own physicians and to the expense or the inconvenience of an out of town journey. The few patients leaving the hospital for the convalescent home in the country would be chiefly those who could not afford to stay in the hospital for the prolonged period of convalescence. The special convalescent features in the country would be similar to those in the general hospital but would include outdoor recreation, improved surroundings and greater economy. The convalescent country hospital should be maintained through the cooperation of a group of hospitals or organizations. This would also make available the benefits of skilled personnel for convalescents from small hospitals and the general medical profession. This is a good time to appeal to you to take an interest in the recreational therapy that should be given to those people in our institutions.

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Society News.—At the fourth annual meeting of the Arizona Public Health Association, Nogales, May 5-6, Drs. Mary Anna I. Nettle, Parker, spoke on "Indians as a Public Health Problem"; George F. C. Fasting, Tucson, "Identifying Clinical Suspects and Carriers"; Benson Bloom, Tucson, "Clinical Review of a Dysentery Outbreak"; Reginald J. H. Stroud, Temple, "Epidemiology of Epidemic Meningitis"; Alexander C. McKean, Globe, "Outbreak of Meningitis in Gila County," and Charles W. Sult, Phoenix, recently appointed state health officer, on "The State Board of Health Program."

CALIFORNIA

Placed on Probation.—Dr. William C. Fiske, Hermosa Beach, is reported placed on probation for ten years by Superior Judge Charles W. Fricke. Dr. Fiske, who is 70 years of age, is said to have pleaded guilty to a manslaughter charge, following the death of a 19 year old girl from an illegal operation.

Permanent Summer Quarantine on Clams.—The California State Department of Public Health at its meeting in San Francisco, April 11, established a permanent quarantine on clams and mussels during June, July, August and September of each year. This quarantine covers the California coast from Monterey County to the Klamath River in Del Norte County with the exception of San Francisco Bay. The sale or offering for sale of clams and mussels gathered from the specified territory during the months mentioned is prohibited.

State Medical Election.—Dr. Junius B. Harris, Sacramento, was installed as president of the California Medical Association at its recent annual meeting; Dr. Joseph M. King, Los Angeles, was made president-elect, and Dr. Emma W. Pope, San Francisco, reelected secretary. The next annual session will be held at Pasadena.

Bills Introduced.—A. 1146 proposes to create a bureau of psychiatry in the state department of institutions. A. J. Res. 27 proposes to memorialize the President to put the United States on record as requesting the permanent opium committee

of the League of Nations to urge on the governments of certain nations the immediate necessity of limiting the production of all habit-forming narcotic drugs to the amount actually required for strictly medicinal and scientific purposes. A. 1501 was originally introduced to amend the dental practice act. It has been so amended as to propose to permit applicants for licenses to practice pharmacy to be examined if they have five years of pharmaceutical experience in the state and have been registered as assistant pharmacists for not less than two years prior to Jan. 1, 1933. A. 1234 was originally introduced to amend the law relating to the criminal jurisdiction of courts. It has been so amended as to create a masseurology board of examiners and to regulate the practice of masseurology, defined "to include physiotherapy, and physical culture, and more specifically defined in detail as the science and art of treating the human body for remedial or hygienic purposes by rubbing, stroking, kneading, tapping or rolling the same for the purpose of relieving, alleviating or reducing, the affected parts thereof." Applicants for licenses must be grammar school graduates and graduates of a college of masseurology teaching a resident course of not less than six months devoted to the study of anatomy, histology, physiology, hygiene and sanitation, dermatology and masseurology.

DISTRICT OF COLUMBIA

Personal.—Col. William L. Keller, chief of the surgical service, Walter Reed General Hospital, will receive the honorary degree of doctor of science at the commencement exercises of the Medical College of Virginia, Richmond, June 2. ——Dr. Francis H. Miner and Dr. Paul S. Putzki were honored with fellowships in the Washington Medical and Surgical Society at its thirty-fourth annual banquet, May 5. This is an annual custom of the society. The only speaker on the program was Strickland Gillilan. Honor guests included Dr. Luther H. Reichelderfer, District commissioner; Dr. William H. Hough, then president of the District medical society; Dr. William Gerry Morgan, President, American Medical Association; Surg. Gen. Merritte W. Ireland of the army; Capt. Joel T. Boone, and Surg. Gen. Charles E. Riggs of the navy.

Annual Meeting and Election.—Dr. John B. Deaver, Philadelphia, was the guest speaker at the annual meeting of the Medical Society of the District of Columbia, May 6-7; his subject was "Moot Points in Chronic Peptic Ulcer." Dr. William Gerry Morgan, President, American Medical Association, spoke on "Some of the Medicinal Effects of Alcohol." Other speakers were Drs. William H. Hough, president, who gave the opening address; William Warren Sager, "Several Interesting Cases of Empyema"; Walter Freeman, "Malaria Treatment of Neurosyphilis"; Alexander B. Moore, "Gastro-Intestinal Bleeding"; Harry H. Kerr, "Surgery of the Sympathetic Nervous System"; Joseph J. Mundell, "Aschheim-Zondek Test for Pregnancy—Report of One Hundred Cases"; J. Russell Verbrycke, Jr., "Cardiospasm," and William Calhoun Stirling, Jr., "General Effects of Unrelieved Prostatic Obstruction." Dr. Arthur C. Christie was elected president of the society; Drs. James A. Gannon and Mary O'Malley, vice presidents, and Dr. Coursen B. Conklin, secretary, reelected. The next annual session held in May, 1932.

FLORIDA

Hospital News.—The new Brewster Hospital for Negroes at Jacksonville has been dedicated. It was erected at a cost of $300,000, having seventy-five patients' rooms, forty-five of which are private.

Bills Introduced.—S. 571 proposes to regulate the practice of midwifery and to provide for the examination and licensing of applicants by the state board of health. Applicants must possess a diploma from a midwifery school or must have attended not less than fifteen cases of labor under the supervision of a licensed physician. Midwives, apparently, are to be given the right to sign birth certificates. S. 322, to amend the dental practice act, proposes to permit applicants of both sexes to be licensed as dental hygienists. The present law, apparently, grants such licenses to women only. S. 442 proposes a new narcotic control act. H. 383 proposes to provide for the establishment of a bureau of vocational guidance and mental hygiene under the department of psychology at the University of Florida. H. 555 proposes to levy an annual occupational tax of $20 on practitioners of medicine, osteopathy, chiropractic, chiropody, dentistry and optometry. H. 804 proposes to levy an annual occupation tax of $25 on practitioners of medicine, osteopathy, chiropractic, "pediatry," chiropody, dentistry and optometry.

ILLINOIS

State Medical Election.—Dr. Roy R. Ferguson, Chicago, was installed as president of the Illinois State Medical Society at its recent annual meeting in East St. Louis; Dr. John R. Neal, Springfield, was made president-elect; Drs. Irenaeus L. Foulon, East St. Louis, and William S. Bougher, Chicago, were elected vice presidents, and Harold M. Camp, Monmouth, and A. J. Markley, Belvidere, were reelected secretary and treasurer, respectively. The next annual meeting will be held in Springfield.

Bills Introduced.—S. 666 and H. 1073 propose to create a state bureau of criminal identification and investigation. H. 1063 proposes to require teachers, employees and pupils in all schools to be vaccinated against smallpox, and further to require such vaccination of patients or inmates of public hospitals and penal or correctional institutions. H. 1069 proposes a new act regulating the practice of beauty culture. The licenses proposed to be granted to successful applicants would, among other things, confer the right to remove hair about the body of any person by any means other than by the use of electricity.

Society News.—At the April meeting of the Central Illinois Radiological Society at Peoria, the society voted to change its name to "Illinois Radiological Society" in order to indicate more correctly the scope of its membership. Dr. Charles E. Morgan, Mattoon, is president of the society for 1931, and Dr. Fauntleroy Flinn, 220 South Webster Street, Decatur, secretary.——Dr. Andy Hall, state health officer, among others, addressed a joint meeting of the Douglas County Medical Society and several civic clubs at Newman, April 24, on "Conservation of Health and Life."——The Adams County Medical Society was addressed at Quincy, May 11, by Drs. Scott J. Wilkinson, Wilbur Stuart Wood and Cecil M. Jack, all of Decatur, on "Relationship of Physical Defect in Children," "Fractures" and "Value of an Observation Section in a Tuberculosis Sanatorium," respectively.——Dr. Edward Lee Dorsett, St. Louis, addressed the Peoria City Medical Society, May 20, on "Management of Breech Presentation."

Chicago

University News.—The Central Interurban Clinical Club, which is comprised of internists from the University of Minnesota, Mayo Clinic, University of Iowa, Washington University, University of St. Louis, Rush Medical College, University of Chicago, Northwestern University and the universities of Wisconsin and Illinois met, May 2, in the morning at the University of Illinois College of Medicine and in the afternoon at Northwestern University. The club meets twice a year and spends a day in various teaching centers in order to become acquainted with new teaching methods and investigative advances.

Society News.—The Chicago Gynecological Society was addressed, May 15, by Drs. Louis Rudolph on "The Posture in the Cardiopath During Pregnancy and Labor"; Harry O. Maryan, "Bacteriology and Pathology of Chronic Cervicitis," and Richard Torpin, "Placenta Circumvallata and the Theory of Its Formation."——A symposium on the use of iodized oils constituted the final meeting for the year of the Chicago Roentgen Society, May 13; the speakers were Drs. Carl A. Hedblom, Irving F. Stein and Frederick H. Falls.——Drs. Sydney Walker, Jr., and Oscar B. Nugent addressed the Chicago Ophthalmological Society, May 18, on "Legal Phases of Industrial Ophthalmology" and "Pathology and Management of Intra-Ocular Foreign Bodies," respectively.——George T. Palmer, D.P.H., New York, addressed a joint meeting of the Chicago Medical Society, Chicago Pediatric Society and the Visiting Nurse Association, May 20, on "Use of Preventive Medical Service for Children in 146 Cities of the Country."——Drs. William F. Petersen, Lloyd L. Arnold and Mrs. M. Milliken, among others, will address the Chicago Society of Internal Medicine, May 25, on "Menstrual Cycle and Focal Reactions."

KANSAS

State Medical Election.—At the annual meeting of the Kansas Medical Society, May 5-7, in Manhattan, Dr. Edgar C. Duncan, Fredonia, was installed as president; Dr. Paul S. Mitchell, Iola, was made president-elect; Dr. James D. Colt, Sr., Manhattan, vice president; Dr. George M. Gray, Kansas City, treasurer, and Dr. John F. Hassig, Kansas City, secretary. The next annual session will be held in Kansas City, May 4-6, 1932.

National Board Diplomates to Be Licensed.—The Kansas State Board of Medical Registration now has authority

to grant licenses to diplomates of the National Board of Medical Examiners without further examination, under an amendment to the state medical practice act passed by the recent legislature. When the new law becomes effective in June there will be a total of forty-one states that accept the examinations of the national board.

LOUISIANA

Society News.—Dr. Walter Clarke, associate general director, American Social Hygiene Association, New York, addressed the Orleans Parish Medical Society, April 27, on "New Orleans' Burden of Syphilis and Gonorrhea." The society was addressed, May 11, by Drs. Hilliard E. Miller and Narcisse F. Thiberge on "Cystocele and Uterine Prolapse" and "Histamine in Asthma."

Personal.—Dr. James Birney Guthrie was recently appointed professor of the principles and practice of medicine and head of the department of internal medicine, and Dr. Abraham L. Levin, professor of gastro-enterology in the department of internal medicine in the University of Louisiana Medical Center, now in process of organization at New Orleans, it is reported. ——Dr. Charles L. Chassaignac has resigned as superintendent of the Eye, Ear, Nose and Throat Hospital, New Orleans, after eight years' service.

MASSACHUSETTS

Bill Enacted. — H. 1474, to designate licensed "lying-in" hospitals as "maternity" hospitals, has become a law.

Licenses Revoked and Restored. — The license of Dr. Charles Grapek, Boston, was revoked, April 2, by the board of registration in medicine for gross misconduct in the practice of his profession. On the same date the licenses of Drs. Edward J. Flaherty, Maynard, and Irving F. Armstrong, Hudson, were suspended for gross misconduct in the practice of their profession. The license of Dr. William Y. Sills, whose registration was revoked, April 10, 1930, on a similar charge, was restored by the board, May 7.

Commonwealth Fund Health Units.—A group of fifteen towns in South Berkshire have united to form the Southern Berkshire Health Unit, established under the provisions of the Commonwealth Fund, which is cooperating with the state health department in promoting rural health. These towns are Alford, Becket, Egremont, Great Barrington, Lee, Lenox, Monterey, New Marlborough, Otis, Richmond, Sandisfield, Sheffield, Stockbridge, Tyringham and West Stockbridge. Dr. Frederick S. Leeder, Pittsfield, has been chosen as director of public health for the area, with headquarters at Great Barrington. A consultant nurse, a milk-sanitary inspector and an office clerk will be associated with him on a full time basis. The principal aims of this program will be to control communicable diseases, assemble vital statistics, guard child and family health through generalized nursing service, promote sanitation, protect food supplies, and carry on health education. A similar demonstration was to have begun in the Nashoba Valley about April 6. Ashby, Ayer, Bolton, Boxborough, Dunstable, Groton, Harvard, Littleton, Lunenburg, Pepperell, Shirley, Stow, Townsend and Tyngsborough are included in this area. The boards of health of these towns have joined into what is called "The Nashoba Associated Boards of Health." Dr. G. Fletcher Reeves, for four years health officer of Nash County, N. C., will be director of public health of this area, with headquarters in Ayer. Every member of each of the fourteen boards of health is included in the membership of this association, which will meet monthly. An executive committee of the association, made up of one member from each of the fourteen boards of health, will also meet monthly midway between the meetings of the association and will serve as a "clearing house" for matters coming before the larger group. Nearly $100,000 a year will be used for from three to five years in this program (THE JOURNAL, Oct. 11, 1930, p. 1105).

MICHIGAN

Personal.—Dr. Morley B. Beckett will succeed Dr. Matthew R. Kinde as director of the Isabella County health unit. Dr. Kinde, who held the position only a few weeks, will direct a newly organized unit in Berrien County. Dr. Beckett had previously been in charge of the Isabella unit.——Dr. John A. Wessinger has been reappointed health officer of Ann Arbor. Dr. Wessinger has been serving in this capacity since 1909.

Bills Introduced.—S. 279, to amend the medical practice act, proposes (1) to repeal the present osteopathic practice act, (2) to provide that the board of registration in medicine be designated as the board of registration in medicine and osteopathy and that its membership shall consist of eight nonsectarian practitioners and two osteopathic practitioners, and (3) to provide that nonsectarian and osteopathic applicants be given the same examinations and receive the same unlimited licenses to practice, including the practice of surgery. H. 622, to amend the medical practice act, proposes that the board of registration in medicine consist of ten physicians, without a distribution of its membership among the several schools of nonsectarian medicine. Such distribution is required under existing law.

Cancer Quack Hoxsey Found Guilty.—Harry M. Hoxsey, cancer-cure quack, who operated for some time at Taylorville, Ill., and later in connection with Norman Baker of Muscatine, Iowa, decided to seek more metropolitan fields and went to Detroit. Here he headed an alleged cancer clinic that, apparently, was financed by some persons named Moross. Hoxsey, as has usually been his scheme, had a person who was legally licensed to practice medicine act as "medical director" of his so-called clinic—one Homer B. Van Hyning. The license of Van Hyning was recently revoked by the State Board of Registration in Medicine, although he is practicing under a stay of revocation granted by the state supreme court, pending an appeal. The case against Hoxsey was conscientiously and carefully prepared by Major John F. Roehl, chief investigator for the board of health. May 8, the jury after one hour's deliberation, found Hoxsey guilty. He was released by Judge Skillman under a $2,000 bond and sentence was deferred one week to permit preparation of a report by the court probation department.

MINNESOTA

State Medical Election.—At the annual meeting of the Minnesota State Medical Association, May 5, in Minneapolis, Dr. Melvin S. Henderson, Rochester, was elected president; Drs. Bertram S. Adams, Hibbing, and Axel E. Hedback, Minneapolis, vice presidents; William H. Condit, Minneapolis, treasurer, and Edward A. Meyerding, St. Paul, secretary. These physicians will assume office, Jan. 1, 1932.

Society News.—Drs. George A. Williamson and Herbert H. Busher, St. Paul, addressed the Ramsey County Medical Society, April 27, on "Transplantation of Tendons with Stabilization of Paralytic Talipes" and "Retrocecal Appendicitis," respectively. —— The Minnesota Academy of Medicine was addressed, May 13, by Drs. Francis F. Callahan, Pokegama, and Henry E. Michelson, Minneapolis, on "Collapse Therapy in Pulmonary Tuberculosis" and "Studies on the Lymphatic Glands in Early Syphilis," respectively. —— Drs. John F. Madden and William Ray Shannon, St. Paul, addressed the Upper Mississippi Medical Society at Wadena, April 25, on "Diagnosis and Treatment of Common Skin Diseases" and "Infantile Tetany."

NEW JERSEY

Society News.—Dr. Wells P. Eagleton, Newark, addressed the Hudson County Medical Society, Jersey City, March 3, on "Complications of Cranial Injuries." —— Dr. Thomas C. Stellwagen, Philadelphia, made an address on "Some Phases of Genito-Urinary Surgery of Interest to the General Practitioner," at the meeting of the Gloucester County Medical Society, March 19.——Dr. Royal C. Van Etten, New York, addressed the Passaic County Medical Society, Passaic, March 12, on modern obstetric methods.——Dr. Herman O. Mosenthal, New York, addressed the Union County Medical Society, Elizabeth, April 8, on diagnosis of Bright's disease.——Dr. Ray Lyman Wilbur, secretary of the interior, Washington, D. C., was the principal speaker at the opening session of the New Jersey Conference on Child Health and Protection, April 16-18, at the New Jersey College for Women, Westfield. About 1,800 persons attended. —— Dr. Frank C. Benson, Jr., Philadelphia, addressed the Camden County Medical Society, Camden, May 5, on "Radium in Prostatic Pathology."——Dr. Joseph C. Doane, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, on "Etiology, Diagnosis and Treatment of Diseases of the End Arteries."

NEW YORK

State Cares for Increased Number of Crippled Children.—The New York State Department of Health cared for 12,500 crippled children in the state during 1930, an increase of 2,000 patients over any previous yearly total; 525 of these were disabled by poliomyelitis. Dr. Walter J. Craig, Albany, is director of this orthopedic work, which grew out of the infantile paralysis epidemic of 1916. The cost of the service

in 1930 was $357,000, or nearly twice that of 1929. The New York Reconstruction Home at West Haverstraw has been reorganized as an integral part of the state program, it is reported. A contract has recently been awarded for two new ward units providing accommodations for about 200 additional beds and the replacing of an obsolete ward allowing for an increase of 100 beds. The various proposed additions will cost about $2,000,000.

Westchester Has First County Sanitary Code. — The first county sanitary code to be established in the state was put into effect, May 1, when the Westchester county health district became subject to a new series of health regulations. The resolutions providing for the sanitary code were unanimously adopted at a meeting at White Plains, April 7, of the Westchester County Board of Health, of which Dr. Matthias Nicoll, Jr., is commissioner. An amendment, which shall be effective, Jan. 1, 1932, provides that no person, firm or corporation shall sell or offer for sale any milk to be consumed as such on the premises where sold unless such milk is contained in individual capped containers, filled and capped at an approved pasteurizing plant, creamery or bottling plant, and containing only the quantity of milk intended for use of the person served.

Health at Utica.—Telegraphic reports to the U. S. Department of Commerce from eighty-one cities with a total population of 30 million, for the week ended May 9, indicate that the highest mortality rate (21.9) appeared for Utica, and the rate for the group of cities as a whole, 12.2. The mortality rate for Utica for the corresponding period last year was 17.9, and for the group of cities, 13.1. The annual rate for eighty-one cities for the nineteen weeks of 1931 was 13.6, as against a rate of 13.3 for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

New York City

Physician Sentenced to Penitentiary.—Dr. Maximilian T. Raun was convicted at Brooklyn recently and sentenced to serve two years in the U. S. Penitentiary at Atlanta, Ga., for aiding and abetting in the misapplication of bank funds.

Hospital News.—Lenox Hill Hospital has completed the first unit of a $5,000,000 building program, which will eventually have three sections with facilities to care for 620 patients. The present structure was built at a cost of about $2,500,000. Patients will occupy rooms from the fourth to the ninth floors; the operating division is on the tenth and the eleventh is devoted to the children's division.——Broad Street Hospital, Manhattan, has recently undergone a reorganization, with Dr. William Sharpe as president of the executive medical board and a new advisory medical board made up of physicians of business firms in the financial district. A department of clinics and a new floor for children are to be opened, it is reported.——The tenth anniversary banquet of the class of 1921 of University and Bellevue Hospital Medical College was held, April 25.——The cornerstone of the new psychopathic unit of Bellevue Hospital was laid in February by Dr. John G. William Greeff, commissioner of hospitals.

Society News.—At a meeting of the Medical Society of the County of New York, April 24, George T. Palmer, D.P.H., presented a paper on "Preventive Medical Services in New York and Other States—A Survey of 146 Cities," and Dr. Louis Schroeder, on "Social and Economic Aspects of the White House Conference."——Dr. Otto C. Pickhardt made an address on chronic cystic mastitis before the New York Surgical Society, April 22. —— Drs. James Burns Amberson, Jr., and David Perla addressed the Bronx County Medical Society, April 15, on "Modern Diagnosis and Treatment of Tuberculosis" and "Resistance and Reinfection in Tuberculosis," respectively. —— Speakers before the Medical Society of the County of Kings, April 21, were Drs. Stanley P. Reimann, Philadelphia, on "Application of the Chemistry of Cell Division in Medicine" and John J. Moorhead, "Precepts in Traumatic Surgery."——Dr. Samuel M. Buch, among others, addressed the Bronx Gynecological and Obstetrical Society, April 27, on "Ovarian Cyst Complicating Pregnancy." —— Dr. Josephine B. Neal read a paper on acute infections of the nervous system before the Brooklyn Society of Internal Medicine, April 24.——Dr. Robert Robison of the department of biochemistry, Lister Institute, London, delivered a lecture on "Chemistry of the Calcification of Bone" at the Hospital for Joint Diseases, May 7, the first of a lectureship established in memory of Dr. Walter M. Brickner. —— Drs. Walter E. Dandy, Baltimore, and Charles A. Elsberg addressed the New York Neurological Society at a joint meeting with the section on neurology and psychiatry of the New York Academy of Medicine, May 12, on effects of total removal of the left temporal lobe in right handed persons, and extradural chondromas, respectively. —— Dr. Fred H. Albee addressed the Harlem Medical Association, May 6, on "Some Unusual Expressions of Pain and Their Treatment."——Drs. Francis Carter Wood and George M. MacKee were the speakers before the New York Physical Therapy Society, May 6, on "Indications and Contraindications of X-Ray Radiation" and "Treatment of Cutaneous Cancer and Precancerous Lesions," respectively.

OHIO

Hospital News.—The Lucas County Hospital, Toledo, dedicated a new building with accommodations for 262 patients, May 2, with a special clinical meeting to which physicians of Toledo and northwestern Ohio were invited. Speakers with their subjects were Drs. William E. Lower, Cleveland, "Research in Factors Governing Prostatic Function and Growth"; Russell L. Haden, Cleveland, "Types and Treatment of Chronic Rheumatism"; David Steel, Cleveland, "Roentgenology Findings in Syphilitic Aortitis," and Floyd E. Keene, Philadelphia, "Malignancy." The hospital was formally presented to the board of county commissioners, May 1.

Help in Locating Physicians.—Telephone service to the public for information and help in locating physicians will be installed, July 1, by the Cleveland Academy of Medicine as the second feature of its new public health program (THE JOURNAL, April 11, p. 1240). Persons seeking physicians will be asked whether they have a family physician. If so, an effort will be made to locate him; if not, a list of not less than three names will be given out. Names in each geographic district will be rotated. The service will also provide the nearest physician or the nearest ambulance to an accident or emergency. The academy will maintain a list of ambulances with specific information on the type and quality of equipment and the financial responsibility of the companies to the patient in case of accident en route. Cleveland newspapers have characterized this service as "a third department of public safety." The "doctor alarm" may be sometimes even more needful than the summoning of either police or firemen, comments the *Plain Dealer*.

PENNSYLVANIA

Bills Introduced. — H. 1783 proposes to provide for the court appointment of psychiatrists or alienists to make mental and physical examination of persons who plead guilty or are convicted of crime, prior to the sentencing of such persons. H. 1868, to amend the workmen's compensation act, proposes that the present limitation of $100 on an employer's liability to an injured employee for medical treatment shall not include the services of specialists, called into consultation by the employer or insurance carrier, or radiographic service requested by the employer or insurance carrier.

Society News.—Drs. Philip J. Reel and Verne A. Dodd, Columbus, Ohio, addressed the Fayette County Medical Society, Uniontown, May 7, on "Ileus" and "Vaginal Discharge—Treatment and Management," respectively. Dr. Louis H. Clerf, Philadelphia, delivered the annual Campbell lecture before the society, May 19, on "Foreign Body Accidents—An Historical Review." —— Dr. Albert E. Goldstein, Baltimore, addressed the Pittsburgh Urological Society, May 11, on "So-Called Painful Kidney (Nephralgia)." —— Drs. Ross V. Patterson, Philadelphia, and George W. Crile, Cleveland, addressed a meeting of the sixth councilor district of the Medical Society of the State of Pennsylvania, Tyrone, May 14, on "Occlusion of the Coronary Artery" and "Peptic Ulcer and Neurocirculatory Asthenia," respectively.——Drs. William H. Guy and William W. Blair addressed the Pittsburgh Academy of Medicine, May 12, on "Superfluous Hair and Its Removal" and "The Present Status of Tuberculin," respectively.——Drs. John T. Burnite and Josiah F. Reed addressed the Dauphin County Medical Society, Harrisburg, May 5, on "Asphyxia of the New-Born" and "Newer Tests for Pregnancy," respectively. ——Dr. Howard Childs Carpenter, Philadelphia, addressed the Harrisburg Academy of Medicine, April 21, on "Infections of the Upper Respiratory Tract in Children." —— Drs. Joseph Kreiselman and Charles Stanley White, Washington, D. C., discussed the use of "Avertin" from the standpoint of the anesthetist and the surgeon, respectively, at the meeting of the Cambria County Medical Society, Johnstown, May 14.—— Dr. Burton J. Lee, New York, addressed the Northampton

County Medical Society, May 15, at Bethlehem on "Diagnosis and Treatment of Cancer."——Dr. Frederick H. Leavitt, Philadelphia, addressed the Delaware County Medical Society, May 14, on "Mental and Neurological Earmarks."——Dr. Julius H. Hess, Chicago, addressed physicians of Pittsburgh, May 11, as the guest of the Pittsburgh Pediatric Society, on "Premature Infants as a Present-Day Problem."——Among speakers who addressed the Pennsylvania Radiological Society, May 13-14, McKeesport, were Dr. Jacob A. Bargen, Rochester, Minn., on "Clinical and Radiological Aspects of Chronic Ulcerative Colitis" and J. L. Weatherwax, Philadelphia, "Penetration of Low Voltage X-Ray and Standardization."

Philadelphia

University News.—A feature of the twenty-third annual Undergraduate Medical Association Day, observed at the University of Pennsylvania, April 30, was the awarding of prizes for the best medical research work by students during the year. Dr. Walter B. Cannon, Boston, addressed the students on "A Search for a Mysterious Cardioaccelerator Substance."

Dr. Hare Honored.—A bronze tablet of Dr. Hobart Amory Hare, professor of therapeutics, materia medica and diagnosis, Jefferson Medical College, was presented to the board of trustees of the institution, May 8, by the junior class of the college. The gift commemorates the forty years' service of Dr. Hare as a member of the faculty. The presentation was made by George A. Porreca, president of the class, and the gift was accepted by Alba B. Johnson, president of the board of trustees.

WASHINGTON

Personal.—Dr. Walter C. Lippincott has been appointed superintendent of the Seattle General Hospital.——Dr. Benjamin F. West, Seattle, recently celebrated the fiftieth year of his medical practice. Dr. West practiced in Indiana before going to Seattle twenty-five years ago.

Society News.—The King County Medical Society held its annual banquet in Seattle, April 4, with Dr. Walter J. Taylor, Port Angeles, who served as state senator in the recent legislature, as the principal speaker, discussing public health legislation. At the meeting, May 4, Drs. James Marr Bisaillon, Portland, Ore., and Lunsford D. Fricks, Seattle, addressed the society on "Differential Diagnosis of Malignancy of the Lung" and "Rocky Mountain Spotted Fever," respectively.—— Drs. Robert D. Forbes and Alexander B. Hepler, Seattle, addressed the Yakima County Medical Society, March 9, on "Abdominal Exploration" and "Diseases of the Prostate Gland," respectively. ——Drs. Donald Palmer and Clyde Countryman, Spokane, addressed the March meeting of the Chelan County Medical Society, Wenatchee, on "Management of Chronic Colon" and "Penetrating Wounds of the Heart," respectively.——Dr. Robert L. Benson, Portland, Ore., addressed the Pierce County Medical Society, Tacoma, March 10, on asthma.——Dr. Harry E. Mock, Chicago, addressed the annual scientific session of the Tacoma Surgical Club, April 18, on "Skull Fractures and Cerebral Injuries."

GENERAL

Dysentery-Like Disease in National Parks.—A mild dysentery-like epidemic has occurred from year to year in the various localities of the northwest mountainous section of the United States, according to the U. S. Public Health Service. The disease is strictly seasonal, practically all of the cases occurring during the hottest and driest months of the year—July and August. In recent years, it has been noticed in certain national parks where large numbers of summer tourists assemble, but the condition has never been limited to these areas. The most noticeable symptoms are nausea, vomiting and diarrhea, and the most striking characteristic is the widespread occurrence of the condition, which resembles symptomatically the food infections caused by the paratyphoid-enteritidis group of organisms. Bacteriologic studies of the disease so far have been negative.

Sight-Saving Courses.—Four universities will offer courses this summer for the training of teachers and supervisors of sight-saving classes. They are: Tulane University, New Orleans, June 15-July 24; University of Chicago, June 22-July 24; State Teachers College, Buffalo, June 29-August 7, and Teachers College, Columbia University, New York, July 6-August 14. An announcement by the National Society for the Prevention of Blindness stated that there are between 50,000 and 60,000 school children in the United States with such seriously defective vision as to require special educational methods and special eye care. The recent White House Conference on Child Health and Protection recommended the establishment of sight-saving classes as the best method of educating these pupils. At present there are said to be fewer than 400 sight-saving classes in the United States.

Pan American Conference of Health Directors.—The second quinquennial conference of health directors of North, South and Central America was held in Washington, D. C., April 20-28, at the Pan American Union. Representatives of fourteen of the twenty-one affiliated nations were present to discuss varied topics, among which were spread of communicable disease through airplane transportation, control of bubonic plague, treatment of bites of poisonous snakes and prevention of blindness. Dr. Miguel Bustamante of Mexico and Dr. Alberto Padilla of Guatemala described a disease called "onchocerciasis," which causes blindness, and which, it is believed, is caused by a filaria conveyed by gnats. Dr. Hugh S. Cumming, surgeon general of the U. S. Public Health Service, who is director of the Pan American Sanitary Bureau, presided at the conference.

Conference on the Hard of Hearing.—The twelfth annual conference of the American Federation of Organizations for the Hard of Hearing will be held in Chicago, June 1-4, with headquarters at the Congress Hotel. Physicians on the program include Drs. Wendell C. Phillips, New York, on "Economics of Early Lip Reading from the Otologist's Viewpoint"; Richard O. Beard, Minneapolis, "Proposed Work with School Children"; George E. Shambaugh, Chicago, "A Program for the Prevention of Deafness"; Elmer W. Hagens, Chicago, "Salvaging of Human Anatomical Material for Pathological Study"; Robert Sonnenschein, Chicago, "Problems of Progressive Deafness of Adult Life Including Etiology and Pathology of Otosclerosis," and Margaret Wilson Gerard, Chicago, "Mental Hygiene as a Rehabilatory Aid in Deafness." Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, Dr. Wendell C. Phillips, former president of the American Medical Association and the founder of the federation, and James R. Garfield, Cleveland, will speak at the annual banquet, Wednesday, on problems concerning the deafened. Harvey Fletcher, Ph.D., New York, is president of the federation.

HAWAII

Society News.—At a meeting of the Honolulu County Medical Society recently, officers were elected as follows: Drs. James A. Morgan, president; Wah K. Chang, vice president; Lyle G. Phillips, corresponding secretary; Alfred L. Craig, recording secretary, and Mon F. Chung, treasurer. Dr. Newton E. Wayson, director, U. S. Leprosy Investigation Station, Hawaii, gave an account of the Leonard Wood Memorial Conference on Leprosy, which he attended in Manila, P. I., January 9-23.

FOREIGN

Graduate Course in Ophthalmology.—The eighth special course for graduate study in ophthalmology under the auspices of the American Medical Association of Vienna will be given between October 1 and December 3 at the I. and II. Eye Clinic of the Allgemeines Krankenhaus, Vienna, Austria. Only lectures with demonstrations will be given, and advanced work only in refraction. The course will be given in English; the fee is $250. Further information can be secured by writing to Prof. A. Fuchs, Vienna, VIII, Skodagasse 13, or to the American Medical Association of Vienna, VIII, Alserstrasse 9, Cafe Edison.

Haitian Medical Society Meeting.—The fourth annual congress of the National Medical Society of Haiti was held, April 8-10, at the National School of Medicine, Port-au-Prince. Morning sessions were devoted to addresses and the afternoons were spent in visits to laboratories of the school of medicine and clinics at the Haitian General Hospital. Medical officers of the U. S. Navy, stationed with the National Public Health Service, presented papers as follows: Capt. Montgomery A. Stuart, "Tuberculosis: Its Prevalence and Prophylaxis in Haiti"; Lieut. Comdr. Guy B. McArthur, "Treatment of Tetanus"; Lieut. Comdr. Sterling S. Cook, "Treatment of Malaria"; Comdr. Lucius W. Johnson, "Treatment of Head Fractures," and Comdr. Charles L. Oliphant, "Organization of a Health Center at Gonaives." Among Haitian physicians who presented papers were Drs. Rulx Leon, "Congenital Malaria"; Martial Bourand, "Strangulated Hernia"; Joseph Buteau, "Treatment of Puerperal Infections"; Paul Desmangles, "Spinal Anesthesia in Obstetrics," and Lelio Hudicourt, "Clinical Aspects of Nervous Syphilis in Haiti."

Government Services

U. S. Public Health Service

Sr. Surg. Hugh De Valin, relieved at Ellis Island, N. Y., and assigned at Dublin, Irish Free State; Asst. Surg. (R) Roscoe W. Cavell, called to active duty and directed to proceed from Los Angeles to Fort Leavenworth, Kan., for duty at the U. S. Penitentiary Annex; A. A. Surg. Isadore Levin, relieved at relief station, Washington, D. C., and assigned at Marine Hospital, Detroit; Asst. Surg. Arthur F. Steinmetz's resignation has been accepted, effective May 7; Asst. Surg. Elmer T. Ceder, relieved at marine hospital, Pittsburgh, and assigned to duty at National Institute of Health, Washington, D. C.; Asst. Surg. Roscoe C. Kash, relieved at Washington and assigned at marine hospital, Pittsburgh; Asst. Surg. Vane M. Hoge, relieved at National Institute of Health, and assigned to duty at Montreal, Canada; A. A. Surg. J. W. Warren, relieved at Edenton, N. C., and assigned to duty at Rosebank, Staten Island, N. Y.; A. A. Surg. William Burns Jones, relieved at Brunswick, Ga., and assigned at Hot Springs, Ark.; Alvin E. Murphy, resigned as assistant surgeon in the regular corps of the public health service, effective April 14. The following physicians have been appointed and commissioned as assistant surgeons in the regular corps of the public health service to rank as such from date of oath: Russell Thomas, Victor H. Vogel, Erwin W. Blatter and Thurman H. Rose. Louis Schwartz and George Parcher have been promoted and commissioned as senior surgeons in the regular corps of the public health service, effective March 25 and April 1, respectively. Asst. Surg. Harold D. Lyman, relieved at San Francisco, and assigned to duty at Vancouver, B. C., Canada.

A Flying Hospital

The U. S. Army's largest and fastest "flying hospital" was put into service at Dayton recently, during the air corps coast defense exercises. It will accompany the first division of 670 planes on its demonstrations at Chicago, New York, Boston, Philadelphia, Springfield, Hartford, Washington and other cities. The plane, which accommodates three patients, in basket litters, has a 525 horsepower engine, and a speed of about 150 miles an hour. Besides the pilot, who sits in a separate compartment in the rear of the cabin, the ship carries a flight surgeon and one attendant. It has equipment for the treatment of emergency cases, especially for persons injured in aviation accidents. When the division is in the air, ambulances will be at ground stations while, where flying is done over water, speed boats will stand by with flight surgeons ready for instant service in the event a plane is forced to alight.

Advisers on Nutritional Studies

Lafayette B. Mendel, Sc.D., Sterling professor of physiologic chemistry at Yale University School of Medicine, New Haven, Conn., and Edwin B. Hart, professor of agricultural chemistry, University of Wisconsin, Madison, have been appointed by the U. S. Department of Agriculture as advisers to its protein and nutrition division in the Bureau of Chemistry and Soils. Professors Mendel and Hart will prepare a report on the protein, vitamin and nutritional work of the bureau.

Patterson Succeeds Ireland as Surgeon General

Appointment of Col. Robert U. Patterson as surgeon general of the army with the rank of major general to succeed Major Gen. Merritte W. Ireland was approved by President Hoover, May 12. Major General Ireland will retire for age, May 31. Colonel Patterson, who was born in Montreal, Canada, in 1877, was appointed assistant surgeon in 1901 from Maryland. He has served in the Philippine Islands and Cuba. In 1917 he was in command of base hospital number 5, serving with the British Expeditionary Forces in France. Colonel Patterson was appointed a member of the American Military Mission to Italy in February, 1918, and served in various capacities with the First, Second, Seventy-Seventh and Eighty-Second divisions. He has been assistant director of the veterans' bureau, executive in the office of the surgeon general and commandant of the service hospital at Hot Springs. Among other honors, Dr. Patterson has been awarded the Distinguished Service Medal and twice cited for gallantry in action. The appointment is for four years.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 25, 1931.

Does Gastro-Intestinal Perforation Cause Shock?

It has long been taught that shock is produced by perforation of the stomach or duodenum. But Lord Moynihan has recently denied this: "Shock is never a symptom of perforation. It is a symptom of peritonitis which follows quickly upon leakage from the stomach or duodenum. The pulse is not increased in frequency nor diminished in volume; blood pressure is not diminished." He considers the use of the term "shock" as dangerous, as when the physician finds the pulse normal he is betrayed, "for he has learned that among the symptoms of rupture is shock." In attacking the current teaching, Lord Moynihan singled out for criticism Mr. Zachary Cope, a writer on abdominal surgery, who has done much to advance clinical knowledge, particularly with regard to the importance of phrenic shoulder pain in acute abdominal lesions, on which he is the pioneer worker in this country.

In a lecture for the Fellowship of Medicine on "The Six-Hour Limit in the Early Diagnosis of the 'Acute Abdomen,'" Mr. Cope made a cogent reply. He pointed out that in teaching that shock occurs he is supported by most surgeons of experience and by nearly all writers on acute abdominal disease. It must of course be remembered that the physician usually sees the patient first in the stage of reaction, when the pulse is slow and steady. But there is usually a history of sudden collapse and prostration which corresponds to what he describes as shock. Every one agrees that following perforation there is generally a condition which looks like shock. Every one agrees that the patient may look white, anxious and collapsed. So the whole question turns on whether this collapsed state can properly be termed shock. When it is recalled that patients have been known to die from the initial collapse, it is manifestly an indefensible position to assert that shock never occurs in such cases. Whether the lesser grades of collapse should be regarded as surgical shock must depend on the definition of shock. Some would confine the term to those cases which present rapid pulse, lowered blood pressure and diminished circulating blood volume. "Shock" is a clinical term and the blood volume cannot easily be measured clinically, so those who define strictly must largely depend on pulse rate, pulse volume and blood pressure. In many cases the pulse does become feeble immediately after perforation, as direct observations testify. Many negative scarcely outweigh a few positive observations on this point. The wonderful compensatory mechanism of the circulation, however, soon brings back the pulse rate to normal, though the volume of the pulse may still be less than normal. The blood pressure is certainly often lowered. Mr. Cope doubts whether those who deny this have tested the pressure again after recovery. A systolic pressure of 130 may be thought normal until it is found later that the patient's normal pressure is 170. There is certainly a lowered, though not necessarily a dangerously lowered, pressure. Mr. Cope would define shock as "a depressed state of the body chiefly affecting the circulatory and metabolic functions, brought about by injurious stimuli." Those who insist on an obvious circulatory depression appear to forget the wonderful possibilities of adaptation of the vasomotor system, which may mask severe depression, and they certainly neglect a much more constant and more obvious sign of shock; i. e., diminished metabolism as betrayed by the subnormal temperature. A person who collapses suddenly and has a temperature of 95 F. is terribly shocked, though the pulse is 70 and of fair volume. Mr. Cope thinks that it is dangerous not to recognize this, for it may lead to subjecting the patient to more than he

can stand. He holds that it is justifiable to teach that shock occurs in case of perforated ulcer, always provided one insists on the rapid reaction, which may deceive the observer as to the seriousness of the condition. One good thing that this controversy between two such eminent abdominal surgeons has done is to call attention to the danger, on which they agree, of the physician thinking that in a case of perforation a feeble pulse is a necessary sign.

Industrial Health

In an address on industrial health at the annual meeting of the Faculty of Insurance and Conference of Insurance Organizations and Social Workers, Sir Malcolm Delevinge, deputy permanent undersecretary to the home office, said that 666 persons were killed in 1930 and over 130,000 suffered injury involving absence from work for at least three days in the factories of the country. Nearly one sixth of industrial invalidity was due to diseases classed as rheumatic and each year these diseases were costing the approved societies $10,000,000 in sick benefit. There could be little doubt that industrial conditions played a considerable part in this total of sickness. The risk of chill was one to which many workers were exposed. Compensation for accidents cost the factories of the country between $10,000,000 and $15,000,000 in 1929. Short of actual absence through sickness or accident, a low standard of health made a high standard of efficiency impossible. Referring to the different ways in which the conditions of industry affected health, Sir Malcolm said that for general purposes the air in a workroom should be changed not less than six times an hour. The subject of the effect of light on health was so new that no provision in regard to it yet appeared in the factory acts, but its importance was becoming increasingly recognized. Referring to the failure of workers to make full use of the means provided for their protection and welfare, he said that while the law required in every factory first-aid boxes to be provided under a responsible person for the treatment of injuries, thousands of minor injuries were allowed to become septic through neglect to use the appliances provided. In the three years 1924-1926, out of 435,801 accidents 43,237, or 10 per cent, were reported as septic. Complaint was frequently made by employers that the welfare arrangements provided by them, such as washing facilities and cloak rooms, were not used or misused. Much as had been done, there was still a long way to go before the great mass of the industrial population understood and practiced many of the fundamental laws of health. The education of the workers in these matters deserved all the attention that those engaged in the health services of the country could give it.

Discrepancy in Dosage of Vaccines

In a letter to the *British Medical Journal*, Dr. Harold Balme refers to the extraordinary discrepancy that exists as to vaccine dosage. Recently he had under care four patients suffering from a chronic streptococcal infection of similar character. For each an autogenous vaccine was prepared by four different pathologists of repute and experience. These four experts recommended, respectively, the following dosages per cubic centimeter: 100,000, 10,000,000, 200,000,000 and 400,000,000. In no case were the organisms detoxicated. Between the first and the last dose there is a difference corresponding to that between a grain and a half a pound of a given drug. After this one cannot wonder that many scoff at vaccine treatment.

The Voluntary Hospitals

In opening a new operating theater and children's ward at the Nottingham General Hospital, Lord Moynihan commended the voluntary hospital system, which socialists describe as moribund and effete. Our voluntary hospitals were adding more than 1,000 beds every year to their previous accommodation and were more than paying their way. One political party would bring our hospitals under state control, but that would mean under an authority which would impose laws without understanding the work as did those who had spent years in voluntary hospital service. The voluntary hospitals represented a peculiarly English way of doing things quietly and undemonstratively but with a higher degree of efficiency than is attached to any system in any other country in the world.

Coffee as a Stimulant During Games

In this country it is usual to provide lemons as a stimulant for the exhausted football players in the pause at the middle of the game. But Dr. Robert Hutchison, a writer on dietetics and on other subjects, recommends a cup of hot sweet coffee. In reply to correspondence in the *Times* on the subject, he points out that the caffeine of coffee acts as a nerve stimulant, abolishing fatigue and speeding up nervous reactions, while the sugar serves as a muscle food from which fresh energy can be quickly extracted. He holds that the hot sweet coffee is of much more use to an exhausted player than the conventional lemon.

Dr. Theodore Dyke Acland

Dr. Theodore Dyke Acland, F.R.C.P., consulting physician to St. Thomas's Hospital, has died in his eightieth year. The son of Sir Henry Acland, Bt., a professor of medicine at Oxford, he was educated at that university, from which he graduated in medicine in 1880. After graduate study at Leipzig and Berlin he was appointed demonstrator of physiology in the Medical School of St. Thomas's Hospital and in 1877 assistant physician. Later he became pathologist and assistant physician to the Brompton Hospital for Diseases of the Chest. His principal writings were the articles on actinomycosis, vaccines and subphrenic and other forms of peritoneal abscess in Allbutt's System of Medicine. He edited the published writings of his father-in-law, Sir William Gull, the famous physician of the Victorian age, and also edited for several years the St. Thomas's Hospital Reports. He was a genial, kindly man, who was regarded with affection by all his colleagues and pupils.

PARIS

(From Our Regular Correspondent)

April 20, 1931.

An Ambulant Antituberculosis Dispensary

The department of Cher stands at the head from the standpoint of efficacy in the crusade against tuberculosis. Even before the introduction of the B C G vaccine, infant mortality in this department was the lowest in France. Since that time, half of the infants receive the B C G vaccine the first week after birth. The mortality in 1929 dropped to 5.9 per cent. The figures for 1930, although not yet complete, point to an even lower mortality than in 1929. One of the most interesting innovations in the public health service of the department of Cher is the ambulant antituberculosis dispensary consisting of an autocar with a trailer carrying an electrogenic outfit capable of producing the currents necessary for medical use. The autocar is 3.20 meters long, 1.80 meters wide and 1.85 meters high, and contains the equipment needed for radioscopic examinations, the taking of roentgenograms and their immediate development—a measuring device, scales, electrical radiators, and an analytical laboratory. It serves also as a consultation room for the physician and the male nurse. The front compartment, which, during the journey from one stopping place to the next, is occupied by the physician, the nurse and the driver, is transformed at the stops into a dressing room for the patient. This ambulant dispensary is stationed in each village in the courtyard of the town hall. About eight towns and villages are visited each month, with approximately twenty patients in each place. The family physician is present at the examinations. The autocar makes it possible to serve small places that lack easy communication with the cities that are well equipped. Among other things, all the school children

that are suspected by the school inspectors of being tuberculous are subjected to regular examinations. The department is planning the creation of another similar autocar for the prophylaxis of venereal disease, together with the exhibition in the evening of educational films.

A Decision with Reference to Cosmetic Surgery

The Paris court of appeals, as the court of last resort, has rendered a decision in the suit for damages brought against a surgeon to the hôpitaux de Paris, a year ago, by one of his female patients. The patient had begged the surgeon to perform an operation on her leg to make it more slender, as she considered it much too large. When the surgeon hesitated to comply with her request, she threatened to commit suicide if he persisted in his refusal. The surgeon finally consented to operate on her in his service at the Hôpital Boucicaut, with the understanding that he would accept no fee for the operation. He made a wide resection of the skin and the adipose tissue. Unfortunately, the compression on the calf of the leg became too severe and gangrene set in, which made it necessary to amputate the leg. The patient brought suit for $20,000 damages. The trial court awarded her $8,000 damages in a decision that constituted a veritable condemnation of the principle of cosmetic surgery. The decision caused considerable stir among the surgeons, so that the judgment of the court of appeals was awaited with keen interest. The court of appeals affirmed the decision of the trial court but brought out different reasons in support of the decision. It refuted the holding of the trial court to the effect that it was a tort on the part of the surgeon to undertake an operation that was not justified by the necessity of preserving the life or the health of the patient, but declared that the surgeon ought to have informed his client of the dangers of the operation and should have procured from her in advance a written statement in which she agreed to assume all the risks. The court held that in a matter of this kind a written agreement should be entered into by the surgeon and the patient, setting forth that the consent of the patient to the operation is given with full knowledge of the risks involved. To sum up: The court recognized that cosmetic surgery is legitimate but that it imposes greater responsibility on the practitioner than ordinary surgery. The specialists in cosmetic surgery will henceforth conform to this requirement but it is to be feared that it will limit somewhat their clientele.

The Foch Hospital

At a special ceremony, the minister of public health recently laid the cornerstone of a hospital to be erected at Suresnes, just outside Paris, which will bear the name of Marshal Foch. The funds for the hospital were secured by popular subscription, $200,000 having already been raised, while the list is not yet closed. The hospital will be erected in a beautiful park comprising 18,000 square meters and will have 300 rooms and a school for the training of nurses. The technical equipment will be of the latest and best design. This hospital will supply a long felt need. Rooms will be reserved for persons of the "middle class"; that is to say, for those who have sufficient means so that they do not need to enter the large open wards but who are not affluent enough to pay the charges of the private clinics and sanatoriums, which have become of late years exceedingly expensive. The regular hospital fee will not exceed $2 a day, and the surgical operations will be performed at moderate rates.

Foci of Yellow Fever

The colonial minister has decided to institute an inquiry into the existence of foci of yellow fever in Africa, in accord with the Rockefeller Institute and taking account of the demonstration of the latter that the virus may be studied not only in monkeys, which have become expensive, but also in mice. Samples of blood sent to the laboratory for examination may be transported to distant points and will preserve their activity for several weeks provided they are kept in a refrigerator. This fact makes it possible to perform inoculations in the laboratories of regions distant from the endemic centers, since, being free of *Aedes egypti*, there is no danger of epidemics developing from the laboratories. An accidental infection of laboratory workers has, indeed, occurred in several instances in the laboratories of Africa and of Europe. While an infection of this kind might give rise to a focus susceptible of spreading in countries in which *Aedes egypti* is encountered, there is no danger in countries in which this species of mosquito is unknown. It is thought that, by reason of this danger, countries that harbor *Aedes egypti* should not be chosen for laboratories in which to make researches on yellow fever. The possibility of transporting samples of blood to distant points will obviate this danger.

Mercurial Poisoning in Shooting Galleries

Cases of mercurial poisoning arising in persons who spend much of their time in the mercury-laden atmosphere produced by the deflagration of mercury fulminate caps in the shooting booths installed at fairs and public festivals have long been known. These booths are always narrow and poorly ventilated. It is not uncommon for several thousand charges to be fired in a single day when several enthusiasts get together, and it has been noted that any jewelry worn by the occupants of the booth, and likewise gilded decorations, will show the tarnishing effects of mercury. There are, to be sure, health regulations that require these resorts to be well aired and ventilated; but the regulations are never enforced, possibly because the police does not understand their significance. By a curious coincidence, the Société des médecins des hôpitaux has received recently several communications from their members referring to the fact that they have observed, of late, persons intoxicated by such an atmosphere. Several physicians have reported that some change appears to have been made in the construction of these percussion caps with the result that they are more harmful than formerly. The diagnosis is often difficult if the patient has not made known the fact that he is the keeper of a shooting gallery, for he often is ignorant of the danger he runs. Dr. Garcin noted a trembling which resembled that of multiple sclerosis and which caused him to hesitate with regard to its true nature. In other cases, fetid gingivitis, dysenteriform diarrhea and congestive rhinitis were diagnosed. Mr. Paraf observed a woman with a generalized trembling, predominantly of the tongue and lips, which was at first diagnosed as dementia paralytica. In all these cases, the analysis of the cerebrospinal fluid revealed the presence of large amounts of mercury. Two patients who recovered after two months' stay in the hospital were seized with the same symptoms as before when they returned to their shooting galleries, having remained frankly sensitized, so that they were compelled to abandon their occupation. Since many other persons placed under exactly the same conditions show no signs of intoxication at any time, one is forced to conclude that the patients who present the symptoms described and who remain anaphylactized have a preexisting personal susceptibility that is brought out by the peculiar conditions of their environment.

School of Medicine for the Natives

Dr. Couvy has sent to the Société de pathologie tropicale an interesting description of the Ecole de médecine at Dakar, French West Africa, which was established for the training of native physicians and native midwives. Their preliminary education is received at the preparatory school in Gorée. All the colonies of French West Africa send pupils. A four-year course is provided for the medical students, a three-year course for pharmacists and midwives, and a two-year course for visiting nurses. This school has already graduated 97 auxiliary physi-

cians, 150 auxiliary midwives and 15 auxiliary pharmacists, whose scientific attainments and moral character have brought honor to their alma mater.

BERLIN

(From Our Regular Correspondent)

April 13, 1931.

Indications for Abortion and the Law

With the general industrial depression, the economic stress of the medical profession, the excitement caused by the Lübeck disaster, which resulted in the deaths of fifty or more infants, and numerous other questions affecting the profession, one might assume that the medical profession of Germany had enough disturbing influences at work, for the time being. Not the least important question on the minds of physicians is the revision of our penal code, which brings up many matters of paramount interest. One of the most frequently discussed paragraphs of the present penal code is section 218, which deals with abortion and declares such intervention to be permissible only on the basis of strictly medical indications. The justification of "social" and so-called eugenic indications is denied not only by the present laws but also by the council on medical ethics, although there are some eminent and respected medical practitioners, gynecologists and others, who take the stand that social and eugenic considerations may and should be weighed along with the strictly medical indications. The state's attorney of Stuttgart has recently taken action that has brought this whole question into an acute stage, which has given rise to heated discussions. He has caused the arrest of Friedrich Wolf, M.D., who is known as a poet (he has written a play, which takes an antagonistic attitude toward section 218) and who designates himself as a "nature cure" physician, and also of Frau Dr. Kienle, a woman physician, and is demanding that they be tried on the basis of compromising documents confiscated by the office of the state's attorney. Apparently the matter came to a head owing to the fact that a patient treated by the woman physician had died in a hospital, severe internal injuries having been found at the necropsy that had been caused by the intervention. The state's attorney does not appear to be having entirely his own way in the matter; for he has been compelled to release not only Dr. Wolf from jail, to which he was unjustly committed pending trial, but also Frau Dr. Kienle, who went on a hunger strike that was threatening to cost her life. The further outcome of the case is awaited with great interest. For clarification of the present situation it should be mentioned that the Württemberg "chamber of physicians" has referred, in connection with this case, to the resolutions of the Leipzig Aerztetag of 1925. In these resolutions one will search in vain for a sentence that does not justify, under certain conditions, combined medical and social indications. With reference to exclusively social indications, the resolutions read: "The so-called social indications, which might better be termed "economic indications," are based on situations of economic distress, concerning the scope of which the physician alone is not a competent judge; hence, such indications for the interruption of pregnancy are absolutely inadmissible." An intelligent person would interpret this to mean that, if the physician has no evidence for believing that the continuance of the pregnancy would constitute a menace to the health of the woman, social or economic considerations alone would not justify an interruption. The preceding sentence says: "Interruption of pregnancy may be provoked only for medical reasons; that is, for the purpose of healing or of warding off danger." It is difficult to understand how one can assume that a physician can be guided by the spirit of the foregoing sentence without taking the special social and economic conditions into account in connection with his further medical considerations.

A few years ago, the Berlin "chamber of physicians," while took a definite stand against the exclusively social indications for the interruption of pregnancy, adopted a resolution to the effect that, in setting up the medical indications, the social and economic conditions were to be given due consideration. Many members present regarded this resolution as superfluous, in view of the fact that its content was universally accepted.

Finally, one of the most eminent authorities in the field of artificial abortion, the former Königsberg gynecologist Professor Winter, pronounced, many years ago, in favor of combined medical and social indications. It goes without saying that opinions may differ as to whether, in view of the economic conditions, the degree of the pathologic conditions awakens sufficient fear to justify an interruption of pregnancy. Hence, physicians are advised to consult with at least one other physician—if possible, a specialist in the type of disease concerned. The Aerztetag and most "chambers of physicians" have likewise recommended consultation with a colleague, because not only the physicians but also the women are thereby best protected against prosecution on criminal charges. Whether or not the courts having jurisdiction in the case under discussion will take account of this demand of the "chamber of physicians" remains to be seen. In any event, other courts have taken cognizance of it. Wolf declared before a large assembly of physicians and lawyers in Berlin that he had never been a strong advocate of abortion and that such an intervention had always been for him the last resort. He stated that he was contending for a rational birth control. Such control could be attained only by abolishing section 218: by recognizing that, in addition to medical indications for the interruption of pregnancy, there were social indications. He closed with a citation from Bernard Shaw: "A country that cannot feed its children has no right to demand children." Wolf is by no means an abortionist who performs operations in consideration of the fees obtainable. The same may be said of Frau Dr. Kienle. Attention may be called to the fact that Professor Grotjahn, of the chair of social medicine at the University of Berlin, has declared in favor of a compromise solution of the question. He suggests that a special law pertaining to the interruption of pregnancy be promulgated the paragraphs of which establish in a precise manner the medical, the social and the eugenic indications. He does not favor full freedom but he does recommend legalization of abortion under restricted conditions. Among the medical profession in general there is a more conservative point of view (Grotjahn is a socialist and Wolf is said to be a communist), which emphasizes that, in establishing the indications, the social factor must not be the decisive influence; for otherwise every abortion could be defended on social grounds. At this stage of the discussion, Professor Mayer, gynecologist of the University of Württemberg at Tübingen, has expressed himself somewhat brusquely. Before an assembly he characterized the "sexual rottenness" of the youth of today with the statement that in a certain metropolis it had been shown that of 750 young women in a secondary school approximately 100 were pregnant. If freedom of abortion were to receive legal sanction, Professor Mayer figured that there would be around 900,000 interruptions in a year, which would require the erection of 300 new hospitals of 300 beds each. It should be emphasized that even though the intervention is performed by skilful men it involves great dangers for women. As always, when this question comes up, one set of opinions is opposed by another. One thing is certain: the categorical rejection of all consideration of the economic status of the woman has lost many adherents among German physicians. The Württemberg "chamber of physicians" of the judicial district in which the case in question arose has expressly declared that it "recognizes unanimously the necessity of considering the economic situation in establishing the medical indications for the interruption of pregnancy. It holds the view that in the case of a physically and mentally healthy woman purely economic reasons do not suffice to establish indications for the

interruption of pregnancy. It recommends a further extension of aid for the pregnant and an adequate preferential treatment of large families. It suggests that the modifications of section 218 long since declared necessary and recommended by representative organizations of the medical profession be carried out at once without waiting for the revision of the whole penal code."

While these discussions have been taking place, the number of cases on the trial docket of the court has greatly diminished. Of the 315 cases that were originally brought before the court by the medical expert and with respect to which Frau Dr. Kienle was accused of criminal conduct, there are nineteen cases left that, according to the criminal court, still awaken suspicion. It may be that through the action of a state's attorney with only local authority the whole question will become clarified, and that is, in any event, imperatively necessary. It is of great importance that research be made to discover whether the interruption of pregnancy is associated with serious danger for the gravida, and whether the Russian reports reflect the true situation.

In the meantime, under the influence of these accusations, numerous leagues have united to form a central German union for the discussion of birth control, with the following aims: (1) exchange of practical experiences; (2) adoption of a definite attitude toward social, juristic, eugenic and ethical questions; (3) stimulation of interest in further researches; (4) collaboration with foreign organizations for the purpose of birth control. The central union emphasizes that birth control does not signify radical prevention of pregnancy but rather a regulation of posterity in a rational manner with more complete recognition of the responsibility involved.

ITALY

(From Our Regular Correspondent)

Feb. 28, 1931.

Congress of Obstetrics and Gynecology

The Congresso nazionale della società italiana di ostetricia e ginecologia was held recently in Rome, at the Policlinico Umberto Primo, under the chairmanship of Professor Pestalozza, senator, and clinician of Rome.

MYOMECTOMY

The official paper on the first topic, "Myomectomy," was presented by Dr. Bacialli of Novara, who emphasized only the points that are not quite settled; namely, the various forms of technic, the disadvantages, the possibility of pregnancy developing, and the movement when surgical intervention is advisable.

Discussing myomectomy of pedicled tumors and the enucleation of interstitial and intraligamentous subserous tumors, the speaker observed that the habit of grouping under the same term "myomectomy" the simple removal of a pedicled fibroma and the enucleation of one or more interstitial nodules had brought confusion into the statistics.

With regard to the technic of enucleation, not only in pregnancy but also in the normal uterus, the author stated that, of the preparatory and complementary interventions of this conservative type of surgery, these have been used chiefly: suturing of the peritoneal flap according to the method of Pestalozza, omental grafts, preventive hemostasis, and abdominal and vaginal drainage.

Speaking of the indications for intervention, the author referred to the following criteria: age of the woman; state of her general health; number, seat and extent of the tumors. Among the contraindications, great importance attaches to the state of conservation and the consistency of the tumor; the modern methods of hysteroscopy and hysterography may, in some cases, show the extent and the location of the fibromatous nuclei with reference to the uterine cavity and the tubal openings. The exact nature of the various indications for intervention in each of the two fields (gravidic and nongravidic), and the improvements in the operative and the postoperative technic have brought the mortality down to very low figures. Among the remote results of these interventions, importance rests in the normal resumption of menstrual function, the possibility of conception and the appearance of recurrences.

The time of the appearance of recurrences ranges from five to fifteen years. In conclusion, the speaker expressed the opinion that myomectomy and enucleation in nongravidic conditions are, as a rule, operative acts quite consistent with the aims of conservative surgery. In pregnancy, simple myomectomy performed early may give good results, whereas enucleation still presents considerable danger.

Professor Pestalozza of Rome recounted his personal experience with fibromas associated with pregnancy. He performed 115 operations, some during pregnancy, some sub partum, and others during the puerperium. The operations performed during pregnancy numbered sixty-eight (thirty-nine myomectomies and twenty-nine hysteromyomectomies); all the women recovered and only six had a miscarriage. He considers that the pedicled fibromas require special attention and always demand intervention.

Consoli of Rome, after studying the cases handled in the Clinica ostetrica in Rome, during the past ten years, regards myomectomy as an operation destined to be more widely used in dealing with women during the child-bearing age, and especially if they are under 40 years of age. Above age 40, certain limitations are imposed.

Professor Alessandri, clinical surgeon of Rome, considers that enucleation, in nongravidic cases, should be the operation of choice for young women. He has often used the anterior flap of the serous membrane, after the method of Pestalozza; at other times he has employed free omental grafts, which, as a rule, give a good attachment.

Professor Cova of Palermo reported that, of 1,000 laparotomies performed, he operated 218 times for uterine fibromyoma, doing 202 hysterectomies and 16 myomectomies, or 1 myomectomy to 12.6 hysterectomies.

STILLBIRTHS

The official paper on the second topic, "Stillbirths," was presented by Prof. C. Micheli of Rome. The figures for stillbirths and for infant mortality, while they have diminished considerably in recent years, are still high. Concerning the proportion of males and females, the statistics show that the number of males dying before, during and after birth is somewhat higher than the number of females. The speaker gave the results of an inquiry made at the obstetric institutes of Italy. In 197,250 births, the stillbirths numbered 11,133, or 5.64 per cent. The deaths among the new-born during the first five days numbered 2,897, or 1.60 per cent. In the various institutes there were great differences in the percentages of stillbirths: the extremes ranged between 2.43 and 15.35 per cent. The most frequent cause of stillbirths and of the deaths of the new-born is syphilis; next in order come intoxications; among the less frequent causes are contamination of the amniotic fluid and prolapse of the umbilical cord. Congenital syphilis, which showed a downward trend from 1890 to 1926, has been increasing during recent years. Energetic antisyphilitic treatment would certainly cause stillbirths resulting on that account to diminish. Eclampsia, as commonly treated, causes at present a high percentage of fetal deaths. Irregular presentations, particularly the shoulder presentation, caused a high percentage of infant deaths in the Italian institutes. The speaker then discussed pelvic defects as the cause of fetal deaths. There is a tendency to make a wider use of cesarean section. Also in cases of displacement of placenta praevia or of a normally inserted placenta, the indications for cesarean section are frequent in grave cases; likewise in uteroplacental apoplexy. Obstetric interventions

have caused only a small number of stillbirths or deaths of the new-born; asphyxia neonatorum has caused a good many deaths. The speaker concludes that stillbirths and the mortality of the new-born may be easily diminished by an improved organization of maternal aid.

According to Professor Politzer of Rome, necropsies performed by him on 100 new-born infants showed that the principal cause of stillbirths and mortality of the new-born is endocranial hemorrhage. Premature birth is the chief predisposing cause of endocranial hemorrhage. Cetroni of Bari reported his observations in 239 necropsies of fetuses and newborn infants performed in the Clinica di Bari, from 1925 to 1930. Endocranial lesions prevail and are often hemorrhagic (38.5 per cent). Visceral hemorrhages constitute a small proportion (4.7 per cent); also rapid endo-uterine asphyxia (11.3 per cent).

Vorza of Milan, in a total of 7,419 births occurring in the Clinica ostetrica of that city, from Jan. 1, 1928, to Sept. 30, 1930, observed 1,495 cases of premature rupture of the membranes (about 20 per cent). The child mortality rate from labor was 5.81 per cent.

Procopio called attention to a cause of death that is now observed in private practice: namely, the unadvised use by midwives of hypophyseal preparations. The use of such remedies by midwives should be prohibited by the Società di ostetricia.

Convention for the Study of Tuberculosis

The Lombard chapter of the Società di studi scientifici sulla tuberculosi will hold its fourth annual convention in Bergamo, June 7. Professor Pepere, of the University of Milan, will present some anatomic considerations on collateral tuberculous inflammation. Professor Ponticaccia, director of the Ospedale di Varese, will offer a communication on the topic "Hemoptysis in Pulmonary Tuberculosis of the Adult."

An extraordinary session will be held at Milan, at which communications will be presented on the principal questions of the day that concern the practical results of collapsotherapy by means of pneumothorax and surgery. Professor Ronzoni will describe the remote results, from the clinical and social point of view, of artificial pneumothorax. Professor Cecchini will speak on the indications and the applications of oleothorax; Professor Castelli on phrenicectomy; Professor Redaelli on apicolysis; Professor Sella on the processes of anatomic recovery in artificial pneumothorax and in surgical collapsotherapy.

A Transfusion Center in Rome

Following the action of many foreign and many Italian cities, a hemotherapeutic center has recently been established at Rome, which, with a view to facilitating treatment by the transfusion of human blood, organizes, examines and instructs voluntary blood donors in order that they may be quickly available for the patients needing them. The management of the new hemotherapeutic center has been entrusted to Prof. Silvestro Baglioni, physiologist of the University of Rome.

Prizes for Scientific Works

At the University of Palermo, a biennial prize of 3,000 lire ($150), established by the Fondazione Salvatore Borruso for the best graduation thesis in medicine, has been announced. For the current biennium, the judges have proposed the following topic: "The Action of Halogen Compounds in Myocarditis."

The University of Rome has announced a triennial prize of 7,500 lire ($375), established by the Fondazione Ernesto Pestalozza. The commission has selected as the prize topic "The Biologic Reactions of Pregnancy."

These prizes will be conferred by the council of professors of the Facoltà di medicina. There has also been established a competitive examination, with a prize of $150, for the best original work on the topic "On the Action of the Compound Resulting from the Chemical Combination of Skimmed Milk with Glycerin and Zinc Oxide, to Be Used as an Excipient of Ointment in Place of Fats, with Especial Consideration of the Phenomena of Permeability, Absorption and Protection of the Skin." The commission of award is composed of three professors of dermatology.

Personal

As successor of the lamented Professor Queirolo, senator, in the directorship of the Clinica medica of the University of Pisa, Prof. Francesco Galdi, at present clinician at Bari, has been appointed.

Death of Prof. Vittorio Ascoli

Prof. Vittorio Ascoli, director of the Clinica medica of the University of Rome, has succumbed to a protracted disorder of the liver. Born at Genoa in 1863, he graduated in 1888 from the University of Rome, and from 1896 to 1912 he served as chief hospital physician. At the same time, he was an assistant and later aid in the Clinica medica, at that time directed by Guido Baccelli, being in charge of the instruction in the disorders of metabolism. From 1903 on he was professor of medical pathology, at first in Rome and later in Messina, and then in Pavia, and finally, in 1917, he returned to Rome and to the Clinica medica.

His scientific publications and those of his school deal chiefly with biochemistry, vegetative neurology, endocrinology and malariology. He wrote also a treatise on malaria, and in Rome he established and directed the Scuola superiore di malariologia. He was also a journalist and well known as an organizer, having created the Università popolare in Rome and likewise the Biblioteca dell'academia medica. He was the manager of several scientific reviews; namely, the "medical section" of the *Policlinico, Cuore e circolazione* and *Malattie del ricambio*. He held also the office of president of the association of the Latin medical press.

TURKEY

(From Our Regular Correspondent)

Ankara, March 25, 1931.

Government Monopoly on Drugs and Narcotics

The opium question has again come to the fore. The customs received orders to renew their strictest attention to the smuggling of drugs and narcotics with the result that a French manufacturer in Istanbul was found guilty and the establishment closed.

Though the bill concerning the monopoly of drugs and narcotics which the government has recently put before the great national assembly has been passed by the assembly committee of health, it is to pass other committees yet, which makes it necessary that the bill be left for final presentation until the opening of the assembly in May.

In regard to the cultivation of crude opium and its production, sale and export, the government has taken no measures and does not intend to do so. The bill has been prepared with a view to establishing a government monopoly in the manufecture of drugs and narcotics. After modifications made by the health committee, the bill has taken the following form:

The manufacture, preparation, import and export of opium for medicinal use and other preparations prepared from crude opium, morphine, heroin and other preparations, however small a percentage they may contain of it and other drugs and narcotic preparations, later to be classified and entered as such by the ministry of health and social assistance, are to be under government monopoly. Cannabis may be cultivated only with governmental permission. If cultivated without such permission, the crop is destroyed and the offender punished. The cultivation of cannabis for the purpose of turning it into hashish is prohibited.

Proprietors of laboratories manufacturing and preparing drugs and narcotics are under obligation to dispose of their

stock within six months from the date of publication of the drug and narcotic monopoly law. The disposing of this stock is to be done in accordance with regulations. It may be disposed of by export to other countries or it may be sold within the country with governmental permission to pharmacies and commercial houses of pharmaceutic preparations.

Drugs and narcotics not sold at the end of six months are to be turned over to the government and paid for at the time of their sale. Laboratories manufacturing drugs and narcotics not in strict accordance with the law will be closed, and machines and other equipment will be confiscated. Offenders will be fined from 100 to 1,000 Turkish pounds, and put in prison for from three months to two years. According to the bill, a regulation is to be prepared for its application and the law will be valid six months from the date of promulgation.

Physicians in Parliament

The professor of medicine of the first medical school, which was built by Sultan Süleyman in 1539, was also the private physician and friend of the sultan. The present medical school was established by Sultan Mahmud II in 1827. It then had four classes and a distinct department of surgical work as opposed to medical activities. Physicians of that time were primarily prepared for army service and it was not until 1865 that the first civil medical school was established in order that the general population might have the benefit of medical service distinct from the military population. In the beginning, Sultan Abdulhamid II also much favored the professors of the medical school; but later, anticipating a possible political influence, he became afraid of them, which seems to have been the reason why he had a new school, the Haidar Pasha medical school, constructed at Haidar Pasha at the beginning of the present century. The medical schools had heretofore been located in old Istanbul (Constantinople) on the European side, and as it was on the European side of the Bosphorus, where the Yildiz, the famous residence of Sultan Abdulhamid II, stood, the removal of the medical school to Haidar Pasha on the Asiatic shore of the Marmora seems to have contributed to his feeling of safety.

After the constitution in 1908, the teaching of the military and of the civilian students, which had been separate, was combined, the medical school becoming a part of the university of Istanbul. During the decades of Abdulhamid's autocratic rule a great number of medical students spent long years in exile while students of means fled to Egypt or Europe to complete their studies. The suspicious sultan did not permit them to go under ordinary circumstances and it was in Europe where their conception of freedom of thought and action and of political independence widened. They set themselves to work, and the result was that the constitution came into being in 1908, among the founders of which were a number of leading physicians.

The great national assembly represents the executive and legislative body of the republic. The cabinet ministers are members of the assembly. Two of the nine cabinet ministers, the minister of foreign affairs and the minister of health and social assistance are physicians.

There are 316 representatives in the national assembly, of which 54 are graduates of the military academy, 52 graduates of university law schools, 48 graduates of the school of political science, 23 physicians, 14 graduates of religious schools, 10 journalists, 8 university graduates of the department of education, 6 graduates of the naval academy, 5 men of letters, 4 engineers, 3 graduates of commercial schools, 1 veterinarian, 1 pharmacist and 1 university graduate of the department of science.

Epidemic on Liner

While in the Mediterranean sea touching Mersina and Adalia, an epidemic recently occurred on the Turkish merchant marine liner *Rustemiye*. The symptoms were high fever, vomiting, diarrhea and rash. On arrival at Smyrna, the captain and the crew was at once taken to the maritime quarantine hospital, where the captain soon died and a few days later the chief fireman and the chief steward. The symptoms of the rest of the crew were not so pronounced and they recovered; none of the passengers had been taken sick. As the liner had no physician on board, it was too difficult to diagnose the disease. Necropsy revealed that a general infection other than plague had been the cause of death in all three cases. Chemical analysis as to poison toxins and examination of viscera were negative as to food poisoning. After the ship left Smyrna, another group of the crew was taken sick with the same but slighter symptoms, and they soon recovered in Istanbul in the hospital. According to Prof. Dr. Tevfik Salim Pasha, the clinical picture and bacteriologic observations pointed to dengue fever. Considering that the captain, the chief fireman and the chief steward had taken their meals together, that the food for the crew and passengers came from separate kitchens, and no case had occurred among the passengers, one group decided on food poisoning as the cause. But food poisoning as the cause was discarded by the other group and dengue fever decided on because of the necropsy, the clinical picture and bacteriologic findings and the fact that one member of the crew who remained in good health had not come on board until Adalia was reached, as also had the passengers. These persons had not been present when the liner stopped in Rhodes, where at this season *Aedes aegypti* is common.

BUCHAREST

(From Our Regular Correspondent)

April 4, 1931.

Establishing a Ministry of Welfare

It is reported that the government is going to amalgamate the ministry of health with the ministry of labor, and it is widely felt that this would be bad for the public health and the medical profession. It is noteworthy, not only in Roumania but also in other countries, that ministers of health are not medical men. In the cabinet that left office ten months ago, two physicians held portfolios, one as minister for home affairs and the other for agriculture. While all other professions in Roumania get powerful support from any of their members who enter the government, medical men who reach the pedestal of the ministry deny all communion with their past and professional obligations attaching to it. Vajda, late minister for internal affairs, or Dobrescu, although physicians, have never taken the remotest part in any medical cause. They never even proposed that Professor Moldovan, who is a physician, should be made minister of health, although he was the obvious man for the post. He has become ministerial secretary of health in the government formed by Maniu in the last year. Again, in the government of Bratianu there were two medical ministers, Anghelescu and Lupu, and it was characteristic of Anghelescu, who has twice been minister of education, that during his ministry he did not want to hear anything about medical affairs. Now that he is out of office he seems to feel himself a physician again. If our medical ministers had cared more for the affairs of the profession there would have been no proposal to abolish the ministry of health—this is the general opinion of Roumanian physicians. The proposal of the new combination was rejected last year but it has cropped up again, and the name suggested for the new combination is the ministry of public welfare.

Settling the Traffic in Proprietary Medicines

The board of health, on the basis of a report by a special commission, deems it necessary to settle the traffic in proprietary medicines. According to the draft of the bill, proprietary medicines can be manufactured by licensed chemical factories whose managers are duly qualified. An official list has to be

prepared on all proprietary medicines that are manufactured here or imported. The draft deems it desirable that official analytic laboratories be established in the four provinces of Roumania: Transylvania, Bukovina, Bessarabia and Banat. If an analytic laboratory reveals that a certain drug does not contain the notified constituents or that its composition does not correspond to the given formula, the medicine in question has to be removed from the register and its sale prohibited. The medical profession of the country is pleased with this new enactment, which is destined to put a stop to the many abuses and irregularities that have prevailed in this field and will restore the confidence of physicians in proprietary medicines.

The Establishment of a Social-Hygienic Center

The new Roumanian law on hygiene lays stress on prophylactic and social hygiene. This is reflected in the effort to establish more welfare centers in the country and polyclinic ambulatories and welfare centers in towns and cities. The urban polyclinics have to embody at least two sections, one for venereal diseases and the other for tuberculosis. In order to achieve the best results it is the endeavor of the authorities to insure the closest cooperation between the welfare centers and ambulatories, as is the case with the Bucharest social hygiene advisory stations, where the nurses are at the service of the attending physicians during the consultation hours, while besides these they are occupied with the preparation of schedules of the medical examinations, and visit the patients at their homes and teach the uneducated classes elementary hygiene. The welfare center and ambulatory are located in the same building and stand under the same administrative control. For every family a ticket is supplied on which their social status is exhibited, and to this the results of the medical examinations is added. In such a way, uniformity is insured in working methods and economy in the number employed.

Etiology of Retrogression of Natural Feeding

That natural feeding of infants is in retrogression at present also in the agrarian countries was confirmed in 1928 at the international conference on the care of children, held at Paris. As in Roumania there are no competent statistical data available. Dr. Iosif Nemoianu publishes his own findings reached with investigations made in Timisoara, the capital of Banat. Out of 1,159 infants taken from various strata of the population, 22 per cent were exclusively fed on the breast, 49 per cent were fed with cow's milk and 29 per cent were fed artificially. As regards the causes of the backsliding of natural feeding he found that in the lowest classes of the population this was due to moral factors (relinquishing of children; misery); in the working class, social factors (working of the mother outside the house); in the well to do classes, in which 59 per cent of the wives could not nurse their babies, constitutional components are in the foreground (atonia of the breast glands; irregularity of the milk secretion). The breast gland atonia is only a partial element in a general atonia, which is attributable —according to all probabilities—to the sedentary living method of rich women. From all these facts Dr. Nemoianu concludes that social factors will always have to be fought against: the present method of life, and the ethical and social surroundings of women.

Marriages

HARVEY MCLEAN WILLIAMS, Eagleville, Tenn., to Miss Julia Katherine Bouchard of Nashville, recently.

LILA MORSE BONNER to Rev. Patrick Dwight Miller, both of Atlanta, Ga., March 7.

JOHN BRUNSON CROSS, Atlanta, Ga., to Miss Frances Pilling of Decatur, March 12.

Deaths

Robert Clyde Lynch ✠ New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1903; Chairman of the Section on Laryngology, Otology and Rhinology, American Medical Association, 1929-1930; member of the American Academy of Ophthalmology and Oto-Laryngology, American Laryngological Association, American Laryngological, Rhinological and Otological Society, American College of Surgeons and the American Bronchoscopic Society; professor of otolaryngology, Tulane University of Louisiana Post-Graduate School of Medicine; surgeon-in-charge of the eye, ear, nose and throat department, Eye, Ear Nose and Throat Hospital; on the editorial board of the *Archives of Otolaryngology;* aged 50; died, May 12, in a hospital at Richmond, Ky., of injuries received when the automobile in which he was riding collided with a bus.

Joseph Addison Stucky ✠ Lexington, Ky.; University of Louisville (Ky.) School of Medicine, 1878; Secretary of the Section on Laryngology and Otology, 1899-1900, American Medical Association; member of the House of Delegates in 1913, and Chairman of the Section on Laryngology, Otology and Rhinology, 1921-1922; member and past president of the American Academy of Ophthalmology and Oto-Laryngology, and the American Laryngological, Rhinological and Otological Society; member of the American Otological Society and the American College of Surgeons; president of the Kentucky State Medical Association in 1921; president of the surgical staff, Good Samaritan Hospital, and otolaryngologist to St. Joseph's Hospital; aged 73; was killed, May 12, near Richmond, when the automobile in which he was riding collided with a bus.

Frank Winders ✠ Columbus, Ohio; Bellevue Hospital Medical College, New York, 1895; formerly secretary of the Ohio State Board of Registration and Education and the Ohio State Medical Association; for many years professor of medicine and clinical medicine, Ohio State University College of Medicine; served during the World War; at one time editor of the *Ohio State Medical Journal;* aged 60; died, April 21, of cerebral hemorrhage.

Leo Christian Huelsmann ✠ Colorado Springs, Colo.; Washington University School of Medicine, St. Louis, 1905; at one time instructor in medicine at his alma mater; formerly on the staffs of the St. Louis Skin and Cancer Hospital, St. Louis Mullanphy Hospital and St. Luke's Hospital, St. Louis; aged 48; on the staff of the Glockner Hospital, where he died, April 25, of agranulocytosis.

James Percy Schureman ✠ New Brunswick, N. J.; University of Michigan Medical School, Ann Arbor, 1905; member of the American College of Physicians; aged 51; on the staffs of the Parker Memorial Hospital, St. Peter's Hospital and the Middlesex Hospital, where he died, May 6, following an operation for appendicitis.

Frederick William Elbrey ✠ Major, U. S. Army, retired, Washington, D. C.; Medical Department of Columbia College, New York, 1867; entered the Army as an assistant surgeon in 1868 and was retired for disability in line of duty with rank of major in 1891; aged 91; died, May 5, of influenza and bronchopneumonia.

Herman G. Matzinger ✠ Buffalo; University of Buffalo School of Medicine, 1884; professor of psychiatry at his alma mater; member of the American Psychiatric Association; on the staffs of the City, Deaconess, Buffalo General and the Children's hospitals; aged 71; died, May 8, of heart disease.

Frank Burr Tibbals ✠ Detroit; University of Michigan Medical School, Ann Arbor, 1891; member of the American College of Surgeons; for many years professor of jurisprudence, ethics and economics, Detroit College of Medicine and Surgery; aged 66; died suddenly, April 22, of heart disease.

Ralph Patrick Mahoney ✠ Portland, Maine; Tufts College Medical School, Boston, 1919; aged 37; on the staffs of the Maine Eye and Ear Hospital, Children's Hospital and the Maine General Hospital, where he died, March 30, of paralytic ileus, following an operation for appendicitis.

John Harley Stamp ✠ Belle Mead, N. J.; Temple University School of Medicine, Philadelphia, 1922; member of the State Medical Association of Texas and the American Psychiatric Association; veteran of the Spanish-American War; aged 56; died, April 20, of pneumonia.

Henry Byrne Maxwell, Whiteville, N. C.; University of Maryland School of Medicine, Baltimore, 1902; member of the

Medical Society of the State of North Carolina; served during the World War; aged 58; died, March 27, in the Bulluck Hospital, Wilmington, of heart disease.

William Thomas Holt, McLeansville, N. C.; Medical Department, University of Tennessee, Nashville, 1890; member of the Medical Society of the State of North Carolina; aged 77; died, April 25, in Greensboro, of streptococcic infection of the pancreas and gallbladder.

Louis Cook Osmun, Hackettstown, N. J.; Medical Department of Columbia College, 1891; member of the Medical Society of New Jersey; aged 65; died, March 31, in the Dover (N. J.) General Hospital, of abscess of the liver and spleen and cystic enlargement of the spleen.

William Thurlow Booher, Wellsburg, W. Va.; Illinois Medical College, Chicago, 1906; member of the West Virginia State Medical Association; past president of the Brooke County Medical Society; aged 49; died, April 14, of cerebral hemorrhage.

Charles Lewis Ley, Camden, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1906; formerly city police surgeon; aged 46; on the staff of the West Jersey Homeopathic Hospital, where he died, April 28, of heart disease.

Ernest Blanton Bowery, Johnson City, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1915; member of the Tennessee Medical Association; aged 42; died, April 7, as the result of an injury received in a fall.

Charles F. Clark ⊕ Columbus, Ohio; Jefferson Medical College of Philadelphia, 1881; member of the American Ophthalmological Society and the American College of Surgeons; aged 75; died, April 22, of heart disease.

Charles Franklin Hicks ⊕ Welch, W. Va.; Maryland Medical College, Baltimore, 1901; member of the American College of Surgeons; medical superintendent of the Grace Hospital; aged 52; died, April 10, of carcinoma.

Joseph Washington Ring, Elkin, N. C.; College of Physicians and Surgeons, Baltimore, 1880; member of the Medical Society of the State of North Carolina; formerly mayor; aged 81; died, April 14, of angina pectoris.

Robert G. McCullough ⊕ Providence, R. I.; Detroit College of Medicine, 1894; served during the World War; on the staff of the Homeopathic Hospital; aged 63; died, May 4, of carcinoma of the bladder with metastasis.

Francis Joseph Sullivan, St. Louis; Washington University School of Medicine, St. Louis, 1906; member of the Missouri State Medical Association; member of the board of education; aged 48; died, April 24, of heart disease.

Alexander Erving Winlack, Shinglehouse, Pa.; College of Physicians and Surgeons, Baltimore, 1907; member of the Medical Society of the State of Pennsylvania; aged 46; died suddenly, April 2, of pulmonary edema.

Benjamin Franklin Smith, Westwood, N. J.; Eclectic Medical College of the City of New York, 1880; Civil War veteran; aged 84; died, in March, of cerebral hemorrhage and hypertrophy of the prostate.

Charles Everett Blackway ⊕ Fall River, Mass.; Harvard University Medical School, Boston, 1918; aged 38; on the staff of the Union Hospital, where he died, April 13, of carcinoma of the stomach and intestine.

Fremont C. Knight ⊕ Waukegan, Ill.; University of Buffalo (N. Y.) School of Medicine, 1880; formerly county coroner; on the staff of the Victory Memorial Hospital; aged 74; died, April 30, of angina pectoris.

Edward Vincent Coolahan, Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1908; member of the Medical and Chirurgical Faculty of Maryland; aged 47; died, April 29, of pneumonia.

Charles Rudolph McDonald, Carlock, Ill.; St. Louis University School of Medicine, 1904; aged 60; died, April 13, in the Brokaw Hospital, Normal, following an operation for carcinoma of the liver.

Robert Fairleigh McDaniel, Louisville, Ky.; Vanderbilt University School of Medicine, Nashville, 1898; served during the World War; aged 54; was found dead in his office, April 13, of heart disease.

George K. Rosenzweig, Chicago; Medical Department of the University of Illinois, Chicago, 1908; member of the Illinois State Medical Society; aged 49; died, May 11, of bacterial endocarditis.

Lee Sloan Payne, Eddy, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1909; member of the State Medical Association of Texas; aged 49; died, February 16, of heart disease.

Milan John Hart, Redlands, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1895; aged 67; died, March 24, of arteriosclerosis and carcinoma of the rectum.

Clarence Eugene Suggs ⊕ Barnesville, Ga.; Atlanta School of Medicine, 1912; past president of the Lamar County Medical Society; aged 46; died, April 14, in St. Joseph's Infirmary, Atlanta.

William Henry Whitaker, Grenada, Miss.; Kentucky School of Medicine, Louisville, 1891; aged 71; died, March 19, of chronic nephritis and embolus, followed by cerebral softening.

Adolph Frederick Werner, Oakland, Calif.; College of Physicians and Surgeons of San Francisco, 1898; aged 67; died, March 30, of a self-inflicted bullet wound in the chest.

William A. Coy, Springfield, Mo.; St. Louis College of Physicians and Surgeons, 1892; aged 72; died, April 3, in a hospital at Nevada, of arteriosclerosis and chronic myocarditis.

Willis Townsend Hinman ⊕ Moline, Ill.; Medical Department of the University of Illinois, Chicago, 1904; on the staff of the Lutheran Hospital; aged 57; died, May 1, of carcinoma.

Wilber Asel Boyden, Anderson, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1885; aged 68; died, April 19, in St. John's Hospital, of cerebral hemorrhage.

John Joseph Lynch ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1905; on the staff of the Frankford Hospital; aged 51; died, April 23, of heart disease.

Robert Harold Heaney, Yreka, Calif.; University of California Medical School, 1917; member of the California Medical Association; aged 39; died, March 18, of uremia.

Jacob Herschel Idol, Bean Station, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1916; served during the World War; aged 41; died, April 12.

Albert Lee Barrow, Abingdon, Va.; University of Maryland School of Medicine, Baltimore, 1903; member of the Medical Society of Virginia; aged 52; died, March 19.

Worthy F. Withers, Arlee, W. Va.; Maryland Medical College, Baltimore, 1911; aged 49; died, April 4, in the Holzer Hospital, Gallipolis, Ohio, of diabetes mellitus.

Thomas Andrew Morrison, Regina, Sask., Canada; University of Manitoba Faculty of Medicine, Winnipeg, 1897; aged 61; died, February 26, of cerebral hemorrhage.

Peter Otto Wipper, Chicago; Bennett Medical College, Chicago, 1910; aged 61; died, May 11, of cerebral hemorrhage, arteriosclerosis and diabetes mellitus.

Elmore A. Frasier, Enid, Okla. (registered, Oklahoma, state board of health, under the Act of 1908); aged 81; died, March 13, in a local hospital.

Dudley Fulton ⊕ Los Angeles; Jefferson Medical College of Philadelphia, 1899; aged 56; died, March 22, of cerebral hemorrhage and hypertension.

George Judson Brown, Chicago; National Medical University, Chicago, 1897; also a dentist; aged 62; died, April 2, of carcinoma of the throat.

Henry A. Newkirk, Norway, Mich.; Medical Department of the University of the City of New York, 1897; aged 55; died, April 24, in Tucson, Ariz.

Thomas Arthur Williams ⊕ Pasadena, Calif.; Cooper Medical College, San Francisco, 1901; aged 65; died, March 30, of chronic myocarditis.

Henry S. Raymer ⊕ Cedar Rapids, Iowa; College of Physicians and Surgeons, Chicago, 1885; aged 75; died, April 1, in Mowrie, Wis.

Frederick Charles Peterson, Hempstead, N. Y.; University of Buffalo School of Medicine, 1896; aged 57; died, March 21, of heart disease.

George Scott ⊕ Atlantic City, N. J.; Bellevue Hospital Medical College, New York, 1871; aged 81; died, March 27, of senile dementia.

John M. Sattler, Milwaukee; Keokuk Medical College, College of Physicians and Surgeons, 1901; aged 60; died, April 2, of psittacosis.

Bennett C. Anderson, San Bernardino, Calif.; Missouri Medical College, St. Louis, 1881; aged 84; died, March 14, of senility.

John W. Meador, Custer, Ky.; University of Louisville (Ky.) School of Medicine, 1876; aged 77; died, April 8.

Galusha Clyde Stone, Saltillo, Miss.; Memphis (Tenn.) Hospital Medical College, 1912; aged 52; died, April 7.

Bureau of Investigation

TUMS

Peppermint Flavored Sugar and Chalk for "Indigestion"

Certain remedies in the "patent medicine" field can always be counted on to be good sellers, if the manufacturer is willing to spend the necessary amount on printers' ink: The alcoholic "tonics," the coal-tar headache remedies, and the innumerable remedies for "indigestion." It is not surprising, therefore, that the A. H. Lewis Medicine Company of St. Louis, which has for some years put out a laxative nostrum called "Nature's Remedy," usually abbreviated "NR" (dealt with in THE JOURNAL, March 15, 1919, and reprinted in "Nostrums and Quackery," Volume 2, and the pamphlet "Miscellaneous Nostrums"), should have gone into the "stomach remedy" field. The new product is called "Tums," which in itself ought to sell a good many of these tablets. From the newspaper advertisements, we learn that Tums are "the mint that relieves stomach distress." They are said to be "made with the very finest mint obtainable; contain extra ingredients that quickly drive away heart-burn, acid indigestion, sour stomach and gas." And, of course, the company does not pass up the opportunity of playing on the public's interest in halitosis, for as the Tums advertisement says: "The breath is purified too." Not a little of the Tums advertising is of what is known as the "knocking" type—attempting to charge certain altogether wholesome food products with being responsible for the digestive disturbances. Such headings as, "Does Sausage Give You Indigestion?" with a picture of a sausage in the shape of a man, dealing a blow to the solar plexus of the sufferer, and "Onions? I Like 'Em But They Don't Like Me." This same type of advertising is also carried in form-letters that the A. H. Lewis Medicine Company sends out advertising Tums.

The advertising declares that Tums are not laxative and that those who need—or think they need—a laxative, should use the company's other product, Nature's Remedy (NR Tablets). The public is instructed to "Eat Tums Like Candy" and is told that Tums may be eaten "as often as necessary to keep the stomach sweet and settled."

For HEARTBURN
Eat like Candy
TUMS
10¢
Do favorite foods sometimes disagree, causing that gassy fullness, burning sourness, belching, nausea, upset stomach, etc.? TUMS—a new Antacid mint—gives almost immediate relief. Simply eat three or four TUMS after meals—often one is enough. Delicious, sweeten the breath. At any drug store—only 10c.
TUMS
For the Tummy

An analysis recently made of Tums indicates that this new marvel is essentially sugar and calcium carbonate (chalk), flavored with peppermint.

Marvelous are the uses of words when supported by mystery and secrecy! Under its own name, chalk flavored with sugar and peppermint would probably be hard to sell as a cure for anything, but under the quite meaningless name, Tums, when accompanied by the necessary amount of high-pressure salesmanship, these ordinary substances take on truly miraculous powers. If advertised truthfully, and with the warning that "stomach distress" may mean not merely a temporary hyperacidity but possibly peptic ulcer or even malignancy, there might be a legitimate place in the home medicine cabinet for these peppermint-flavored tablets of chalk and sugar. But, unfortunately, if advertised truthfully, they would probably not sell.

THE ELECTRO-CHEMICAL RING FRAUD

An Old Swindle Revived and Again Debarred from the Mails

Readers of THE JOURNAL, with long memories, may remember that in the issue of April 10, 1915, this department reported the issuance of a fraud order against the Electro-Chemical Ring Company of Toledo, Ohio. According to the postal authorities, the Electro-Chemical Ring Company was a trade name under which Walter G. Brownson and his son, Edward C. Brownson, operated a fraudulent business. The business consisted in selling rings made out of ordinary, commercial iron, worth at the most the veriest fraction of a cent apiece, for $2, under the claim that wearing the ring would result in the cure of such conditions as Bright's disease, diabetes, epilepsy, goiter, catarrh, cancer, etc.

The government issued a fraud order against the Electro-Chemical Ring Company Oct. 1, 1914. Hardly had it been issued when Walter G. Brownson attempted to evade the order by operating the business under his personal name. As a result, the government extended the fraud order on Dec. 29, 1914, to cover the name of W. G. Brownson.

Some years later—in 1927—an attempt was made to revive this swindle under the name of C. F. Mensing, but due to the activities of the postal authorities, Mensing filed a stipulation to discontinue the business. Two years later—in 1929—another attempt was made to revive this business by George W. Brownson, a brother of Edward C. Brownson, but apparently discretion again proved the better part of valor and nothing came of it.

In 1930, however, the ring-selling scheme was revived under the name of "Walter Limber." Whether there is any such person as "Walter Limber" is not made clear in the memorandum of the Solicitor, the Hon. Horace J. Donnelly, to the Postmaster General, but reading between the lines it seems likely that no Walter Limber exists in the flesh. The ring was being advertised under that name from 227 Fourteenth Street, Toledo, Ohio, which is a private residence abutting the rear of the property of the Electro-Chemical Ring Company. The claims made for this fantastic swindle in its recent revival were essentially the same as those made sixteen years ago, when the original fraud order was issued. As a result, the Solicitor recommended the issuance of another fraud order against the name of "Walter Limber." It was issued Feb. 24, 1931.

Phthisis-Producing Dust.—For a dust to be phthisis producing, it must possess certain qualities some of which may be enumerated as follows: It must be capable of overcoming the lung's physiological ability to rid itself of dust and of getting itself arrested, and of getting itself so arrested for a considerable time. As dust particles do not multiply of themselves, it must be relatively indestructible by tissues and tissue juices. Since the initial means of arrest is by phagocytosis, it must be of a size to lend itself to this process; that is to say, it must be about the size of the common pathogenic micro-organisms.—Mavrogordato, A.: Studies and Reports Series F. (Industrial Hygiene) No. 13, International Labor Office, Geneva, 1930.

Correspondence

"CANCER" BY WILLY MEYER

To the Editor:—The review of my recent book on cancer (THE JOURNAL, April 11, p. 1255) is gratefully noted.

A few lines below the middle, the review quotes the book as follows: "The medical treatment should have as its object the change of the alkalosis to acidosis" and then continues: "but how this is to be accomplished is not described."

Regarding this statement, may I be permitted to call attention to chapter 37, p. 396, of the book, where the following occurs: "27. How to go about producing the acidosis has been elaborated in the several chapters of Part II of this book." The chapters referred to are numbers 31 to 36, and the means for producing acidosis therein examined by discussion and by casuistics are: artificially induced fever; Coley's fluid; hunger; medication by the administration of calcium internally and externally, parathyroid tablets, acid and colors.

WILLY MEYER, M.D., New York.

TREATMENT OF EDEMA

To the Editor:—My interest in the metabolism of calcium has stimulated the following comment on an excellent article by O'Donnell and Levin (The Treatment of Edema: Effect of Calcium Gluconate on Edema in Children, THE JOURNAL, March 14, p. 837), in which the authors call attention to the favorable results obtained in the treatment of nephrosis edema by injections of calcium gluconate.

Edema is largely a problem in osmosis, and the osmotic tension of the plasma in a large measure is dependent on the mineral base balance, in turn largely influenced by the sodium (144): calcium (2.5) ratio. The figures represent millimols per liter in normal plasma, and the principles involved have been clearly laid down by Jacques Loeb (Calcium in Permeability and Irritability, *J. Biol. Chem.* **23**:423, 1915).

The sodium: calcium ratio may be said to have a "one-sided" reciprocal relationship in that, if the plasma calcium is raised or lowered, the Ambard sodium chloride threshold, which is the stable portion of the sodium chloride concentration of the plasma, will go down or up, the concentration of other solutes of the plasma being fixed (e. g., Collip and Clark: Further Studies on the Physiological Action of a Parathyroid Hormone, *J. Biol. Chem.* **64**:485 [June] 1925). The reverse is not true: a rise or fall of the salt threshold does not influence the calcium concentration. In other words, the Ambard threshold is a "buffer" for calcium, as it is for at least some of the other solutes.

The time to study these chemical relationships is during the preedematous stage, as the relationships are not apparent after water and sodium chloride pass the vessel wall. At this time, the sodium: calcium ratio is definitely raised, and the fact becomes the basis for treatment. O'Donnell and Levin have attempted to restore the normal ratio by the injections of calcium gluconate, and in their incipient cases have apparently achieved success. However, it is usually considered that calcium by mouth or by any perenteral method gives no assurance that it ultimately participates in metabolic activity, even if the calcium level of the plasma would so indicate, or that such a concentration is resolved into a normal and proper physiochemical state (Cantarow, Abraham: The Diffusability of Calcium in Bronchial Asthma, *Am. J. M. Sc.* **179**:497 [April] 1930).

The logic of the treatment would call for a low sodium chloride diet and the use of parathyroid extract, both of which would influence directly the sodium: calcium ratio. Metabolism of calcium is also assured. The method of treatment presumes sufficient reserve kidney capacity and is applicable to cardiac and nephritic edemas.

To those unfamiliar with the use of parathyroid extract, it may be stated that, for a person of 150 pounds (68 Kg.), 30 units daily by the hypodermic route in a single dose will raise the total calcium level from normal to 18 or 19 mg.—as high as it should be raised. The treatment may be continued for two weeks without danger, and it should of course be used in conjunction with the low salt diet. Afterward there should be periods of rest. A supply of calcium may be added in the form of gluconate, if thought desirable. It is safer to determine the plasma calcium concentration before starting injections.

HARRIS A. HOUGHTON, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIAGNOSIS OF PERSISTENT JAUNDICE

To the Editor:—A white man, aged 37, was well until July, 1930, when, because of bad pyorrhea, he had fifteen teeth extracted. In September his friends called his attention to the yellow coloration of his skin. This jaundice continued to increase for three weeks until it became intense and has remained so since. During this time the patient continued to work. He was not bothered with pain or gastro-intestinal disturbances. He had never noticed the color of his stool until he entered the hospital. On entrance the patient stated that he believed he had lost 40 pounds within about six months. Since his entrance into the hospital, he has gained 3 pounds in three weeks. He has not complained of any symptoms, except severe itching of the skin at two different times. The family history is essentially negative. The patient is married and has one child. He admits drinking but only occasionally. He does not use drugs. He has worked outside as a street foreman for years. He has never been away from New England and has never worked or come in contact with any chemicals. His past history is negative, except for the usual childhood diseases; he has been troubled with constipation and required cathartics. The patient is well developed and nourished. Most of his teeth are absent; the lungs are normal; a soft systolic murmur is heard at the base of the heart and not transmitted; the blood pressure is 130 systolic and 75 diastolic. His temperature since entrance into the hospital has been normal, except for the second day, when it was 100.2 F. The pulse is 85. The liver appears to be slightly enlarged, though smooth. The spleen is not palpable. January 9, the Graham test showed a nonfilling gallbladder. The gastro-intestinal series of plates was negative; the van den Bergh test gave a direct immediate reaction; the Wassermann test was negative twice. The urine examination was negative, except for bile; the stools since entrance have been from grayish to clay color; the patient is negative for parasites. Blood examination revealed 2,300,000 erythrocytes, January 9, 5,300,250, January 16, and 3,660,000, January 19; 11,050 leukocytes, January 9 and 7,800, January 19; hemoglobin, from 85 to 90 per cent; polymorphonuclears, 69 per cent; lymphocytes, 20 per cent; myelocytes, 11 per cent. After consultations it was decided to do an exploratory laparotomy after having treated the patient with calcionates for three days. The operation was made twenty-one days after entrance into the hospital. His bleeding time was two minutes; coagulation time, three minutes. The operation showed a collapsed gallbladder, bleeding not excessively; no signs of previous inflammation; liver slightly enlarged, of a slate gray color and thickened edge; spleen slightly enlarged; head of the pancreas negative; no stones or tumors felt; no fluid; veins not engorged. Please omit name.

M.D., Massachusetts.

ANSWER.—Many pathologic processes come to mind in the diagnosis of a persistent obstructive jaundice. A small gallstone lodged at the ampulla of Vater or at the junction of the cystic and common bile ducts may be present and not uncommonly be overlooked at the time of operation. The absence of pain does not exclude this possibility. The finding of a small gallbladder which could not be visualized by the Graham-Cole method further directs one's attention in this instance to a cholelithiasis with an associated chronic cholecystitis.

A condition not as rare as formerly believed and unfortunately often not considered is carcinoma of the ampulla of Vater. It manifests itself as a small tumor, frequently no larger than a pea or a cherry, obstructing the outlet of the common bile duct and producing no symptoms other than loss in weight and jaundice of the obstructive type, which if the tumor ulcerates varies somewhat in intensity from time to time. Metastases occur late, affording a good prognosis if an early diagnosis is made. Because of its small size, it frequently escapes the attention of the surgeon.

Catarrhal cholangeitis, while rarely enduring longer than eight weeks, may secondarily produce an obstructive biliary

cirrhosis, the result of backpressure in the bile ducts with pressure necrosis of the adjacent liver cells and subsequent fibrous replacement, with persistent jaundice. An enlarged spleen is a common observation in these cases.

A painless progressive jaundice must always call to mind the possibility of pancreatic disease, consisting of carcinoma, cyst formation or chronic inflammation. Repeated studies of the stools are of paramount importance, undigested starch (compound solution of iodine), fats (sudan III) and meat fibers (irregular, jagged ends) being diagnostic aids. Carcinoma of the bile ducts cannot be differentiated clinically from carcinoma of the pancreas or ampulla. It is characterized by early metastases to the liver, and the diagnosis can be made definitely only at operation.

Enlarged lymph nodes in the portal fissure compressing the common duct must be looked for. They are usually secondary to a malignant condition in the stomach, pancreas and intestine, especially the colon and rectum.

Tumors of the neighboring organs may likewise compress the common bile duct, but the physical examination, roentgen studies, urinalysis and stool examination should help to elucidate the picture. A hydatid cyst of the inferior surface of the liver may obstruct the common duct. While it is a rare cause of obstructive jaundice and can seldom be diagnosed, there should be no difficulty in detecting it at the time of the operation. Aneurysm of the hepatic artery is also rare, but it may in the same manner produce a similar jaundice. The usual signs of aneurysm may, however, be revealed, to wit: a mass in the right upper quadrant, be it small or large, presenting an expansile pulsation, systolic thrill, diastolic shock and systolic bruit.

Finally, even in the absence of two negative Wassermann reactions, a therapeutic test is indicated in view of the large percentage of syphilitic hepatitis without a positive Wassermann. Potassium iodide, fifteen drops three times a day, increased one drop per dose a day for ten to fifteen days, is to be advocated.

VAGINAL REACTION AND STERILITY

To the Editor:—A woman, aged 26, in good health, has been married three years and is anxious to have a child. The husband's sperm is normal and very active. The Wassermann reactions are negative. Gynecologic examination of the patient reveals a normal uterus in good position, no suprarenal disease, and both tubes patent by the Rubin test. Menstruation occurs every twenty-five days and is of three to four days' duration, with moderate discomfort. The secretion of the vagina is acid to litmus and so is the saliva. This, I believe, is the cause of her sterility. The patient has had alkalis by mouth and sodium bicarbonate douching twice a day for four weeks and still the reaction is the same. Can you advise? Kindly omit name.

M.D., New York.

ANSWER.—The secretion of the vagina is acid in most women and this is considered to be the normal reaction. Vaginal acidity is due to lactic acid and the highest values of vaginal acidity are always found in the most normal vaginas. The cervical secretion, on the other hand, yields an alkaline reaction. Spermatozoa may remain alive and actively motile in the acid vaginal secretion for a number of hours. However, a long continued stay of the spermatozoa in the acid vagina will kill them; but this does not matter because normally spermatozoa do not remain in the vagina very long. An actively motile spermatozoon travels between 1 and 2 cm. in seven or eight minutes. Hence it does not require much time for spermatozoa to gain access to the uterine cavity, or at least to reach the cervix, where the reaction is normally alkaline. It is difficult to see how the acid reaction of the saliva can cause sterility and therefore how the administration of alkalis by mouth to try to overcome this will remedy the sterility. The question of whether differences in chemical reaction in the vagina and even in the cervix can be the cause of sterility is still unsettled. Some authorities maintain that changes in these reactions, especially in the cervix, cause the death of spermatozoa, whereas other writers express the belief that changes in the chemical reaction of the vaginal and cervical secretions are not of importance in the causation of sterility. The normality of the reaction of the cervical secretion is considered to be much more important than that of the vagina. No mention is made of a visual examination of the cervix in this patient. If there is an erosion, this may be the cause of sterility and the condition should of course be remedied, preferably by means of an electrical cautery. In the case cited, the spermatozoa are normal; if the patient's pelvic organs, including the cervix, are entirely normal, it may be advisable to inseminate spermatozoa directly into the uterine cavity. This should be done a number of times each month about midway between the menstrual periods. The patient should be told that many inseminations may have to be made before success can result.

TREATMENT OF TUBERCULIDS

To the Editor:—Please advise me of the most efficient treatment of tuberculosis disseminata or papulonecrotic tuberculids occurring in the skin of elderly persons. Many remedies have failed in this case. Please omit name.

M.D., Pennsylvania.

ANSWER.—The best treatment for such cases is, first, constitutional. The Gerson diet, low content of sodium chloride, limited carbohydrate, limited animal proteins, largely vegetables and fruits, should be approximated as well as is practicable. Vegetables and fruits should be eaten raw as much as possible and their juices taken between meals. In addition to liberal supplies of good milk and unsalted butter, cod liver oil should be taken three times a day. General ultraviolet irradiations, an outdoor life, regular hours and plenty of sleep in the open air are advisable. Locally, intense ultraviolet irradiation with the water-cooled lamp, x-rays or radium, should be used. Small doses of arsphenamine intravenously have an excellent effect in some cases but should be given with care in the elderly.

ZINC STEARATE IN RUBBER INDUSTRY

To the Editor:—A rubber works is desirous of using zinc stearate in place of soapstone to dust on the rubber stock as they believe it gives a nice finish. It is dusted on the stock with a brush and flies up into the air. The fine particles can be seen floating in the air all through the room. Is this dangerous? If so, is there an effective way of combating the danger?

M.D., Ont.

ANSWER.—In 1925 and the years just preceding, zinc stearate acquired an unenviable reputation as a toxic agent in connection with its inhalation by infants.

Zinc stearate, prepared for use as a dusting powder, was purveyed in such containers as to favor the coming off of the lids and the covering of the faces of these children. The condition was sufficiently significant to lead to an appointment of a special committee of the American Medical Association. The committee reported (THE JOURNAL, March 7, 1925, p. 750) 131 cases of poisoning, 21 per cent of which terminated fatally. The conditions commonly produced were bronchitis and bronchial pneumonia, which states were attributed to the combined mechanical and chemical action of zinc stearate. By implication, this committee reported that zinc stearate is more toxic than equal quantities of talc or powders of mixed composition. It is probable that, in the greater number of cases of these infants, large quantities of zinc stearate entered the respiratory tract.

In industry, no comparable condition is likely to exist. The dust that arises, while longer sustained, is far less concentrated. Nevertheless, it is undesirable that any considerable concentration of zinc stearate dust be tolerated in workroom atmospheres. Such dust is conducive to low grade, ill defined inflammation along the respiratory tract. Granting that the hazard is a minor one, such dust may prove to be the source of frequent complaint from employees who are prone to attribute all conditions affecting the respiratory tract to the workroom atmosphere, and thus the way is paved for unwarranted claims and ill will.

Zinc stearate may be applied to rubber stock under conditions that prevent or minimize the amount of dust. In cabinets, dust may be applied mechanically either with blowers or brushes. In the absence of enclosed apparatus, suction may be used to advantage in conjunction with hand brushes. However, in this process, some wastage of zinc stearate may take place.

TRANSMISSION OF BREATH SOUNDS

To the Editor:—Will you please discuss the mechanical and physical factors involved in the transmission in some cases and the nontransmission in others, of breath sounds through a pleural effusion or empyema? Please omit name.

M.D., New York.

ANSWER.—In diminished or absent breath sounds over areas of pleural effusion or empyema, one or both of two factors are operating: The excursion of the affected side is limited or the transmission of the breath sounds to the examiner's ear is impaired by the interposition of fluid or of solid tissue or air, as in pneumothorax. Rarely breath sounds are increased in intensity or become bronchial in quality in cases of pleural exudation or transudates when pleural adhesions are present or when the fluid is not sufficient in amount to compress the bronchi but compresses the alveoli.

PANSINUSITIS IN A CHILD

To the Editor:—A child, aged 9 years, has pansinusitis complicated with pyonephritis. He is no sooner up and about for a few weeks than he catches cold, or, even without a cold, pus again appears in his kidneys. The parents are well-to-do and have had all kinds of medical advice. Is it justifiable to do a radical operation on the maxillary sinuses and drain the ethmoids? I had a similar case about ten years ago and operated. The immediate result was good, but I have not seen the patient since so do not know whether it was followed by any faulty development of the facial bones or not. Could you give me the most recent views on this subject? Strange to relate, most works on rhinology and pediatrics have but little to say on the treatment of purulent sinusitis in children. Lavage and making a window under the lower turbinate are recommended. I feel sure that this would be insufficient in this case. Please omit name.

M.D., California.

ANSWER.—As a rule, radical antrum operations are not necessary in children because it usually suffices to make a large window in the inferior meatus. In some cases in order to prevent closure of this opening a rather large size rubber tubing, especially of the self retaining type, is inserted into the antrum and retained in place for some time. The ethmoids are usually well developed at birth, and if there is persistent infection of these sinuses, an intranasal operation can be done if absolutely necessary. In some cases it is best to infract the middle turbinate away from the nasal lateral wall, to use nasal astringents such as epinephrine solution, and to apply nasal suction. If this line of treatment does not suffice, the ethmoid cells, as previously mentioned, may be opened. It is usually necessary to use general anesthesia for children, except for the older ones, on whom a local anesthetic may be successfully employed. When the conservative operation does not suffice and it is found that the antrum is filled with polyps, it may be necessary to perform a radical operation, such as the Luc-Caldwell, with caution.

DIFFICULTY OF CEREBRAL CIRCULATION

To the Editor:—I have a patient, a man about 55 years of age, who has a constant roaring and knocking in his head whenever he stands up, but this all disappears when he lies down. He has been an energetic insurance man and Sunday school teacher all his life, and now for about two years—after he has talked for one or two minutes—his voice entirely disappears. He can lie down and think and figures out his problems and feels perfectly normal. When he gets up, he seems unable to think clearly and this knocking in his head is almost unbearable. I have had about everything done except spinal puncture and all results are negative, with no evidence that a spinal puncture would do any good. I would appreciate any information that you may have on this type of condition.

LOUIS L. SHERMAN, M.D., Oakland, Calif.

ANSWER.—The facts given suggest the possibility that there is some cardiovascular condition that results in a relative cerebral anemia which is increased by the erect posture and by an extra demand on brain function. If there is no evidence of arteriosclerosis or other cardiovascular disease, it is possible that the condition may be a functional one—a psychoneurosis. Under these circumstances it would be wise to consult a neuropsychiatrist with the object of excluding organic brain disease and investigating the possibility of the existence of emotional disturbances.

DISINFECTION OF BOOKS

To the Editor:—For many years, in accordance with the the city ordinance, when the city health department releases any quarantined family, all public library books and all public school books are collected and destroyed. I have often felt that the destruction of such books was probably an antiquated and useless waste. Would you kindly advise me as to what you believe to be the best practice regarding the management of library and school books that have been in quarantined homes?

H. L. SAYLER, M.D., Des Moines, Iowa.

ANSWER.—There is little, if any, evidence showing that library workers and attendants contract communicable diseases from books that have been in the environment of cases of communicable disease. Reading-matter for patients suffering from acute communicable disease should be furnished in the form of pamphlets, magazines and papers that are less fatiguing to hold, and whose value is so small and their replacement so easy that the economic question of their destruction by burning does not merit consideration.

The treatment of library and school books that have been in homes or institutions in which communicable disease has occurred depends on (1) whether the book was actually used by a patient suffering from such disease, (2) whether the book is grossly soiled by discharges of the patient, and (3) the character of the disease in question.

1. Books that have been in the home or even in the sickroom and have not been used by a patient are believed to be harmless. Fumigation with formaldehyde would disinfect the exposed surfaces of such books. However, in recent years such fumigation for the disinfection of rooms and fomites has been abandoned and there is no reason for believing that a book that has not been used by the patient is any more dangerous than other inanimate objects existing under the same conditions.

2. If the book has been used by the patient and shows no evidence of gross contamination by infectious discharges of the patient, it is believed that thorough dusting with a power blower, such as the blowing attachment of a vacuum cleaner, preferably outdoors in the sunlight, followed by a storage period of six months or longer will render the book reasonably safe, except when the disease is one that comes under heading 3. If the book shows evidence of gross contamination with sputum, saliva, blood, urine or feces, its further use is objectionable to the user and unless rare or valuable should be destroyed.

3. Books used by patients suffering from a communicable disease due to spore-forming organisms, such as anthrax, should be destroyed.

Books used by lepers usually are destroyed on account of the loathsome character of the disease, though actually the danger from such books, if treated as in 2, is so slight as to be practically negligible.

PTYALISM

To the Editor:—A woman, aged 30, has complained of ptyalism to a distressing degree for the past three years. The tonsils, as a possible source of irritation, were removed two years ago. The teeth have likewise been attended to. Examination of the mouth, Stensen's ducts and salivary glands is entirely negative. There is no pain in the region of the glands. The saliva is very watery; when the patient arises in the morning there is a great deal of phlegm in the throat. The blood Wassermann reaction is negative. Neurologic examination is entirely negative. Mercury and the iodides have not been used. The patient has some anemia and is mildly neurasthenic; physical and fluoroscopic examination of the chest is negative. Nausea occurs, especially in the morning. Roentgen examination of the sinuses is negative except for slight clouding of the right antrum. An incidental but striking finding was the presence of about five or six small calculi beneath the left mandible in the region of the submaxillary gland. Bromides have been ineffectual. Belladonna causes a transient, distressing dryness of the mouth, with thick phlegm in the throat, difficult to swallow. Is there any value in a chemical analysis of the saliva? Can the calculi and ptyalism be a result of a secretory disturbance or the sequelae of a possible tuberculous process of the left submaxillary gland? Can the gland metabolism be influenced by medical measures, or the concretions dissolved? If the calculi were to be removed surgically, would they not recur? What measures do you suggest in this case? Please refer me to appropriate literature. Please omit name.

M.D., New York.

ANSWER.—There is usually a large nervous element in a complaint such as this patient has. Ptyalism is seldom if ever associated with salivary calculi. Salivary calculi are sometimes found on roentgen examination though not having given symptoms of any kind. As the examination of salivary glands and ducts in this case was entirely negative, they are probably of no consequence.

BENEFITS OF PROSTATIC MASSAGE

To the Editor:—A man, aged 54, whose complaints are headaches, easy fatigue and irritability, who has never had any genito-urinary symptoms, whose prostate is about normal in size and a thorough examination by reliable specialists shows no infections, and who has tried for years to get relief at the hands of prominent men with no results, finds that massage of the prostate benefits him greatly. How is this improvement to be explained? Is the prostatic secretion really an excretion the retention of which is toxic to certain individuals? Does massage empty the prostate more than normal sexual relations or dreams? It could not be suggestion, as it was done at first only as a routine. Has it ever been suggested that a like condition may occur in females by the retention in the glands of Bartholin? What harm could come from weekly massage of the prostate in this case? What could be done or advised to get the results in some other way? Please omit name.

M.D., Washington.

ANSWER.—The improvement in the nervous symptoms as related may be explained by accepting the theory especially propounded by French authors that the prostate has a decided endocrine function. It is asserted that massage of the prostate forces the endocrine products of this gland into the circulation, thus producing stimulation of other endocrine glands that are considered integral parts of the "steering apparatus" of the system. The regular massage of the prostate would then represent a mechanical organotherapy. The Bartholin glands function simply as a lubricating apparatus, their secretion being stimulated by sexual excitement. A retention of their secretion, if not produced by inflammatory infiltration, is not known to cause any general symptoms. As long as the patient referred to experiences relief from this, there cannot be any reasonable objection to repeating at intervals a gentle prostatic massage.

SECRETION OF SEMINAL VESICLES AND ENLARGEMENT OF PROSTATE

To the Editor:—What becomes of the unused secretion of the seminal vesicles? Is there any scientific basis for the statement often seen in nonprofessional books that this secretion is absorbed into the general system? Does enlargement of the prostate in the middle lobe bear any particular relationship to exercise of the sexual function? Please omit name.

M.D., Michigan.

ANSWER.—Most of the unused secretion of the seminal vesicles is either discharged in a nocturnal pollution or finds its way into the bladder and is discharged with the urine. A small portion of it is at times absorbed into the general system.

There is no relationship between enlargement of the middle lobe of the prostate and the sexual function. At present the cause of such enlargement is not known. Venereal disease, continence or sexual excesses or abuses cannot be put down as a cause so far as is known.

DANGER OF EXPLOSION WHEN OPERATING IN THROAT WITH ELECTRICAL KNIFE

To the Editor:—Is it safe to do a tonsillectomy under ether anesthesia with the radio knife (cutting current)? In other words, would there be any danger of the ether exploding in the throat?

WATT YEISER, M.D., Columbia, Tenn.

ANSWER.—There is always a danger of explosion when ether or other inflammable anesthetics are used in connection with cauterization or any method in which a spark may be generated. It is better in some of these instances to employ chloroform, which is not inflammable. If ether is used, the mask and the container should be removed from the vicinity of the operation and a short time allowed to elapse until the ether vapor in the throat becomes much attenuated before employing the radio knife or other appliance that may cause ignition.

POSSIBLE DIAGNOSIS AND TREATMENT OF TUBERCULOUS KNEE

To the Editor:—I have a woman patient, aged 44, with a chronic swelling of the knee, presumably tuberculous. I have it in a plaster cast. I should like to know the probable outcome of such a case, the length of time necessary to keep it immobilized, and suggestions as to treatment. Please omit name..

M.D., Missouri.

ANSWER.—A diagnosis should be based on a careful history, routine physical examination and roentgenograms made in two projections. Concerning the outcome of this case, one must presuppose a correct diagnosis. If it is tuberculous, the best treatment is a fusion operation to remove every vestige of mobility. This fusion operation can be performed by the method of dissection of the joint surfaces and the approximation of the resected surfaces, or it may be performed by the method described by Hibbs.

INTRAVENOUS USE OF BIOLOGIC PREPARATIONS

To the Editor:—What intravenous dilution may be given safely of smallpox vaccine, diphtheria antitoxin and streptococcic vaccine? Please omit name.

M.D., Pennsylvania.

ANSWER.—Smallpox vaccine is not given intravenously. Diphtheria antitoxin may be given intravenously in full strength or diluted with physiologic solution of sodium chloride, if desired. It would be dangerous indeed to inject ordinary streptococcic vaccine intravenously because it may contain streptococcal masses that might give rise to pulmonary and other forms of embolism.

TREATMENT OF BURNS WITH TANNIC ACID

To the Editor:—In regard to the treatment of burns with tannic acid, how would the general practitioner obtain the acid and in what form? Does it have to be made up fresh each time? I have seen it used and am aware that the dressings have to be saturated for a certain length of time; but these two points I want to be sure of. Please omit name.

M.D., New York.

ANSWER.—The solution must be freshly prepared, as on standing tannic acid becomes changed to the nonastringent and much less soluble gallic acid. As the dressing has become an important emergency measure, valuable time could be saved and maximum benefit derived from its life saving properties by keeping tannic acid in power papers containing 6.25 Gm. each. One such powder dissolved in a tumblerful (250 cc.) of water yields a 2.5 per cent solution.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Philadelphia, June 8. Denver, July 23. Sec., Dr. William H. Wilder, 122 S. Michigan Ave, Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Philadelphia, June 6. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

CALIFORNIA: *Reciprocity Meeting.* Los Angeles and San Francisco, June 17. *Regular.* San Francisco, July 6-9. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, July 8-10. Sec., Dr. Wm. W. Williams, 224 State Capitol Bldg., Denver.

CONNECTICUT: New Haven, June 6. *Basic Science.* Address, State Board of Healing Arts, Box 1895, Yale Station, New Haven.

DELAWARE: Wilmington, June 9-11. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington.

FLORIDA: Jacksonville, June 15-16. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

GEORGIA: Atlanta and Augusta, June 10-12. Sec., Dr. B. T. Wise, Americus.

ILLINOIS: Chicago, June 23-25. Supt., Mr. Paul B. Johnson, Springfield.

INDIANA: Indianapolis, June 23-25. Sec., Dr. Wm. R. Davidson, 413 State House, Indianapolis.

IOWA: Iowa City, June 2-4. Dir., Mr. H. W. Grefe, Des Moines.

KANSAS: Topeka, June 16. Sec., Dr. C. H. Ewing, Larned.

KENTUCKY: Louisville, June 9-11. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville.

MAINE: Augusta, July 7-8. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MARYLAND: Baltimore, June 16-19. *Regular.* Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 16-17. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 15-17. Sec., Dr. F. C. Warnshuis, 1010 Maccabee Bldg., Detroit.

MISSOURI: St. Louis, June 10-12. Sec., Dr. James Stewart, Capitol Bldg., Jefferson City.

NATIONAL BOARD OF MEDICAL EXAMINERS: Class A Medical Schools having five or more applicants, June 23-25. Ex. Sec., Mr. E. S. Elwood, 225 South Fifteenth St., Philadelphia, Pa.

NEBRASKA: Omaha, June 8-9. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NEW JERSEY: Trenton, June 16-17. Sec., Dr. James J. McGuire, 28 West State St., Trenton.

NEW YORK: Albany, Buffalo, New York, Syracuse, June 23-25. Chief, Mr. H. J. Hamilton, Room 315, State Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 15. Sec., Dr. John W. MacConnell, Davidson.

NORTH DAKOTA: Grand Forks, July 7-10. Sec., Dr. G. M. Williamson, Grand Forks.

OHIO: Columbus, June 2-5. Sec., Dr. H. M. Platter, 85 East Gay St., Columbus.

OKLAHOMA: Oklahoma City, June 11-12. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, July 7-9. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

PENNSYLVANIA: *Written.* Philadelphia and Pittsburgh, July 7-9. *Practical.* Philadelphia, July 10-11. Sec., Dr. Charles D. Koch, Harrisburg.

RHODE ISLAND: Providence, July 2-3. Director, Mr. Lester A. Round, Room 319, State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 23. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TENNESSEE: Knoxville, Memphis and Nashville, June 16-17. Sec., Dr. Alfred B. DeLoach, Medical Arts Bldg., Memphis.

TEXAS: Austin, June 23-25. Sec., Dr. T. J. Crowe, 918-919 Mercantile Bank Bldg., Dallas.

UTAH: Salt Lake City, June 30–July 1. Director, Mr. S. W. Golding, 412 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 17-19. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 23-26. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

WASHINGTON: *Basic Science.* Seattle, July 9-10. *Regular.* July 13-14. Dir., Mr. Charles Maybury, Olympia.

WEST VIRGINIA: Harpers Ferry, July 7-9. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: *Basic Science.* Milwaukee, June 6. Sec., Prof. R. N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Regular.* Milwaukee, June 30-July 1-2. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

WYOMING: Cheyenne, June 1. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Hawaii January Examination

Dr. James A. Morgan, secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, Jan. 12-15, 1931. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1930)	81.8
Washington University School of Medicine		(1928)	83.7
Creighton University School of Medicine		(1930)	81.7

Minnesota January Examination

Dr. E. J. Engberg, secretary, Minnesota State Board of Medical Examiners, reports the written and practical examination held at Minneapolis, Jan. 20-22, 1931. The examination covered 12 subjects and included 60 questions. An average of 75 per cent was required to pass. Thirty-three candidates were examined, all of whom passed. Four candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
Northwestern University Medical School	(1929)	89
University of Illinois College of Medicine	(1930)	87.3
State University of Iowa College of Medicine	(1925)	96.3
Johns Hopkins University School of Medicine	(1928)	91.3
University of Michigan Medical School	(1929)	90.5, 92.1
University of Minnesota Medical School	(1929)	83.4, 91.3, (1930) 84.5,* 84.6, 85.5,† 86.6,* 87.5,* 88.1,‡ 88.6,* 89.4, 90,* 91.3,‡ 91.5,‡ 92.4, 93, 93.2,‡ (1931) 82.4, 86, 89.6, 91.1
University of Buffalo School of Medicine	(1929)	92.2
University of Pennsylvania School of Med.	(1927)	94.4, (1929) 95
University of Pittsburgh School of Medicine	(1928)	87.1, 88.6
University of Alberta Faculty of Medicine	(1927)	91.1
University of Manitoba Faculty of Medicine	(1923)	86.6

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
College of Medical Evangelists	(1927)	California
Johns Hopkins University School of Medicine	(1912)	New York
University of Pennsylvania School of Medicine	(1926)	W. Virginia
University of Pittsburgh School of Medicine	(1919)	Penna.

* These candidates received their M.B. degree in June, 1930, and will receive their M.D. degree on completion of one year's internship in a hospital.

† This candidate received his M.B. degree in March, 1930, and will receive his M.D. degree on completion of one year's internship in a hospital.

‡ These candidates received their M.B. degree in December, 1930, and will receive their M.D. degree on completion of one year's internship in a hospital.

SCHOOLS OFFERING SUMMER COURSES IN 1931

Prepared by the Council on Medical Education and Hospitals

CALIFORNIA

STANFORD UNIVERSITY SCHOOL OF MEDICINE, 2398 Sacramento Street, San Francisco.—No routine teaching of undergraduate work, but offers special opportunities for study and research to both graduates and medical students in the clinics, wards and laboratories. Work also offered to graduates and undergraduates as "special workers" in the various departments includes pharmacology, pathology, general medicine, diabetes, electrocardiography and basal metabolism, chest diseases, pediatrics, neuropsychiatry, skin and syphilis, metabolism laboratory, radiology, physical therapy technic, general surgery, fracture clinic, orthopedic surgery, genito-urinary surgery, ophthalmology, otolaryngology, surgical pathology, surgical anatomy, obstetrics and gynecology, and female urology. Minimum attendance is four weeks. Make application to William Ophüls, M.D., dean.

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL, Parnassus and Third avenues, San Francisco.—Courses for graduates in medicine will be given from June 8 to June 20. Several of the clinical branches will be covered in morning and afternoon courses, including general medicine, general surgery, otorhinolaryngology, genito-urinary diseases, tumors, roentgenology, pediatrics, circulatory diseases, laboratory diagnosis, pathology, neuro-otology and operative technic. In addition to the regular courses, there will be combined rounds of the Departments of Medicine and Surgery on Wednesday mornings, daily noon lectures, and clinicopathologic conferences open to the medical public without charge. Address Langley Porter, M.D., dean.

COLORADO

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE, 4200 East Ninth Avenue, Denver.—Term extends from June 22 to August 29, offering the following courses to medical students and graduates in medicine: gross anatomy, microscopic anatomy, neuro-anatomy, research in anatomy, research problems in bacteriology and public health, chemistry of blood, biochemical preparations, research in biochemistry, basal metabolism, clinical laboratory methods, technic of the Wassermann test, clinical pathology for medical students, autopsies, research in pathology, advanced physiology of the glands of internal secretion, special problems in pharmacology, and special problems in physiology. During July an intensive course in clinical psychiatry, the psychopathology of childhood and mental hygiene will be conducted by the staff of the Psychopathic Hospital and the heads of other departments. This course is open to graduates in medicine and will consist of lectures, clinical ward and outpatient work. Address Maurice H. Rees, M.D., dean.

CONNECTICUT

NEW HAVEN SCHOOL OF PHYSICAL THERAPY, 303 Whitney Avenue, New Haven.—Graduates in medicine may register throughout the year, but are advised to come if possible during June, July or August. Address Harry Eaton Stewart, M.D., director.

ILLINOIS

CHICAGO EYE, EAR, NOSE AND THROAT COLLEGE, 231 West Washington Street, Chicago.—Graduates in medicine wishing to take short clinical courses in diseases of the eye or ear, nose and throat may register for any period beginning any time. Address Oscar B. Nugent, M.D., secretary.

GRADUATE SCHOOL OF PEDIATRICS, Children's Memorial Hospital, 707 Fullerton Avenue, Chicago.—Three courses in pediatrics will be given to graduates of medicine during the months of June, August and October, each consisting of four weeks. The forenoons are taken up with medical pediatrics consisting of ward walks, outpatient and amphitheater clinics and demonstrations of special cardiac, syphilitic, neurologic, nephritic, infant and nutrition clinics, and of lectures on infant feeding, the newer phases of the contagious diseases of the blood, etc. The afternoons are devoted to practical instructions in clinical pathology with special reference to laboratory methods of diagnosis; to x-ray demonstration; and to the specialties of surgery and orthopedics, and skin, eye, ear, nose and throat diseases. There is a weekly orthopedic ward walk and a weekly operative orthopedic clinic. A special course of one hour a week is given in pediatric technic covering lumbar and ventricular puncture, paracenteses and aspirations, intubation, collection of urine, blood typing, transfusion and the various methods of introducing fluids into the body. Eight didactic lectures are given in each course. Address all inquiries direct to the Graduate School.

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, 706 South Lincoln Street, Chicago.—Summer quarter begins June 17 and ends July 29, offering to acceptable students from class A medical schools courses in anatomy, such as histology and organology, embryology, neurology and applied anatomy. For information address the registrar.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, 508 South Honore Street, Chicago.—Graduate courses are offered in anatomy, dermatology, laryngology, rhinology, otology, medicine, pediatrics, biophysics, obstetrics, gynecology, ophthalmology, oral surgery, pathology, bacteriology, pharmacology, physiology and physiologic chemistry and surgery. Research work in all departments will be emphasized. Quarter will begin about June 6. Address D. J. Davis, M.D., dean.

RUSH MEDICAL COLLEGE, University of Chicago, 1758 West Harrison Street, Chicago.—The courses in the third and fourth years of the medical schools are continued at Rush Medical College during the summer quarter in the departments of pathology, medicine, pediatrics, surgery, obstetrics, gynecology, laryngology, otology, ophthalmology and dermatology. There will be opportunity for a limited number of qualified special students to take work in these departments. Postgraduate courses in otolaryngology, ophthalmology, dermatology, and radiology for a limited number of qualified students who are able to spend one or more years in study are continued during the summer quarter. In radiology, courses for shorter periods may be arranged. For further particulars consult Ernest E. Irons, M.D., dean, or James H. Harper, registrar.

GRADUATE SCHOOL OF MEDICINE OF THE DIVISION OF THE BIOLOGICAL SCIENCES, University of Chicago, Fifty-Eighth Street and Ellis Avenue, Chicago.—In the summer quarter of 1931, courses in all departments of medicine are offered in close connection with the other departments of the Division of the Biological Sciences. Students having necessary prerequisites may register for any of the courses offered. Courses offered include zoology, anatomy, physiology, physiologic chemistry and pharmacology, pathology, hygiene and bacteriology, medicine, pediatrics, surgery, obstetrics and gynecology. Address B. C. H. Harvey, M.D., dean of medical students, the Graduate School of Medicine of the Division of the Biological Sciences.

INDIANA

INDIANA UNIVERSITY SCHOOL OF MEDICINE, Indianapolis.—During the six weeks following June 16, short courses will be offered to the physicians of Indiana involving both clinical and laboratory work. Courses for graduates in medicine are as follows: biochemistry, pharmacology, medical ward visits, physical therapy, general pathology, disease production and resistance (also open to senior students in medicine), obstetric clinics and obstetric surgery, and a nutrition course designed for nurses and dietitians as well as for the medical man. Clinics are held in dermatology, genito-urinary diseases, ophthalmology, rhinology, otology, laryngology and surgery. For further information address the registrar, Indiana University School of Medicine, Indianapolis.

IOWA

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, Iowa City.—The summer session is divided into two terms. Courses are offered to graduates and undergraduates in anatomy, bacteriology, physiology, hygiene and preventive medicine and biochemistry. Address Henry Spencer Houghton, M.D., dean.

KANSAS

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE, Lawrence.—During the first term, from June 11 to July 18, courses in anatomy, bacteriology, biochemistry, physiology and pharmacology will be given. The second term extends from July 20 to August 14. Courses in anatomy, bacteriology and physiology will be offered. Address Harry R. Wahl, M.D., dean.

LOUISIANA

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE, 1551 Canal Street, New Orleans.—Courses will be offered in the different divisions of anatomy, biochemistry and physical diagnosis of patients. Address Charles C. Bass, M.D., dean.

MARYLAND

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE, Lombard and Greene streets, Baltimore.—Offers a three weeks' general intensive course for physicians from June 8 to 27. Registration is limited and preference will be given to physicians registered in Maryland. The course consists

of lectures dealing with modern advances in diagnosis and treatment, stressing the field of general medicine and surgery, but the various specialties will also be included. The schedule covers ward rounds, daily clinics conducted by different departments, assignment at dispensary clinics for pediatrics, genito-urinary diseases, syphilis and gastro-intestinal diseases, as well as laboratory methods of diagnosis, therapeutic procedures, roentgen diagnosis and electrocardiography. For information address the Dean of the Medical School.

JOHNS HOPKINS UNIVERSITY SCHOOL OF HYGIENE AND PUBLIC HEALTH, 615 North Wolfe Street, Baltimore.—Two elementary courses in hygiene will be offered during the summer. One of the courses is entitled "Elements of Hygiene and Preventive Medicine" and the other is "School Hygiene." For information address the director.

MASSACHUSETTS

HARVARD UNIVERSITY MEDICAL SCHOOL, 240 Longwood Avenue, Boston.—Courses for graduates, undergraduates and others are offered throughout the summer in anatomy, physiology, biologic chemistry, bacteriology, pathology, preventive medicine and hygiene, pediatrics, medicine, roentgenology, diseases of the nervous system, surgery, anesthesia, proctology, genito-urinary surgery, orthopedic surgery, physical therapy, obstetrics, gynecology, dermatology and syphilology, ophthalmology, laryngology and otology. For further information address David L. Edsall, M.D., dean.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.—Offers courses from July 6 to August 14 in bacteriology, public health laboratory methods, health education methods, methods of teaching general biology and a surveying camp course in limnological field work, August 28 to September 18. Address Committee on Summer Session.

MICHIGAN

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL, Ann Arbor.—The summer session begins June 29 and ends August 7. Some of the laboratory courses will extend to August 21. Courses are open to practitioners of medicine, undergraduate students registered in recognized medical schools and all persons qualified to pursue them to advantage. The undergraduate work will include: (1) all of the laboratory and some of the lecture courses of the first and second year; (2) some of the demonstration courses of the third year; (3) certain of the clinical courses of the senior year; (4) elective courses advantageous to medical students, technicians and others. Courses cover work in anatomy, bacteriology, dermatology and syphilology, internal medicine, neurology, obstetrics and gynecology, ophthalmology, otolaryngology, pathology, pediatrics, pharmacology, materia medica and therapeutics, physiologic chemistry, physiology, roentgenology and surgery. Address Arthur C. Curtis, M.D., secretary.

MINNESOTA

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL, Minneapolis.—This school has the four quarter system, and therefore the usual course is offered during the summer to both graduate and undergraduate students. The summer quarter is divided into two terms, the first extending from June 17 to July 25; the second, from July 27 to August 29. Students may attend either or both terms if they have the necessary prerequisites. E. P. Lyon, M.D., dean.

MISSOURI

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Avenue, St. Louis.—The summer work will begin June 3 and end July 31. Undergraduate instruction will be offered in anatomy, bacteriology, biochemistry, biology and chemistry. For particulars write the registrar.

NEW JERSEY

PHYSIATRIC INSTITUTE, Morristown.—Courses will be conducted during the summer. Address Frederick M. Allen, M.D., director.

NEW YORK

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 630 West One Hundred and Sixty-Eighth Street, New York.—One course for medical graduates will be offered in gastro-enterology. Apply to Willard C. Rappleye, M.D., dean.

UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE, 24 High Street, Buffalo.—The summer quarter will begin June 29 and end September 12. Two courses will be offered: one in systemic anatomy and one in general pathology and pathologic histology. Edward W. Koch, M.D., dean.

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE, Twenty-Sixth Street and First Avenue, New York.—A graduate course in pediatrics in June is being offered. Work will be assigned in different wards each day of the week. Lectures, conferences and clinics will be given all members of the course. In the afternoon the graduates will work on ambulant cases under the advice of instructors. Fourth year students who have adequate preparation may be admitted. The course may be repeated in July if the demand is sufficient. Address Charles Hendee Smith, M.D., professor of pediatrics, Bellevue Hospital.

NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL, 341-353 West Fiftieth Street, New York.—Postgraduate courses for the general practitioner will be offered during the summer with the exception of special courses in three branches—pathology, roentgenology and refraction. Address F. H. Dillingham, M.D., medical executive officer.

NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, Second Avenue, Twentieth and Twenty-First streets, New York.—Postgraduate courses will be offered to physicians during the summer. A course in general medicine will be offered from one to three months. Individual courses may be taken separately. A general course is also given and consists of clinical lectures and demonstrations, operative clinic, etc., in nearly all the departments. There will be lectures in medicine, surgery, gynecology, urology, dermatology, neurology, pediatrics, orthopedic surgery and traumatic surgery. Courses will be offered in pediatrics, general surgery, proctology and blood transfusion, anesthesia, gynecology, urology, dermatology and syphilology, otolaryngology, ophthalmology, neurology and psychiatry and laboratory courses in pathology, bacteriology and biochemistry. For further information address the Dean, 303 East Twentieth Street.

SCHOOL OF OPHTHALMOLOGY AND OTOLOGY OF THE NEW YORK EYE AND EAR INFIRMARY, Second Avenue, corner Thirteenth Street, New York.—A six months' course in ophthalmology and otology will be given, beginning July 1, to graduates of regular class A medical schools who desire this special training. Instruction is carried on at the hospital in the clinics and wards by lectures, demonstrations and quizzes given by the attending staff or their assistants. Special courses will be given in practical instruction in the theory and practice of ophthalmology and otology to graduates of regular medical schools who have had training or practice in these subjects. This course begins on the first of each month, and many of the subjects are covered in one month. Address communications direct to the secretary of Committee on School, 218 Second Avenue.

TRUDEAU SCHOOL OF TUBERCULOSIS, Saranac Lake.—The essentials of the course offered will be given in the four weeks May 18 to June 13, although an additional two weeks from June 13 to June 27 will be devoted to clinics such as laryngeal, aural and surgical tuberculosis and non-tuberculous complications; institutional organization and management, prophylaxis and surgical laboratory technic. Address E. R. Baldwin, M.D., Director.

NORTH CAROLINA

DUKE UNIVERSITY SCHOOL OF MEDICINE, Durham.—Courses given during the summer quarter for first and second year students will be electives, planned primarily for those who have had the regular required courses. For junior students, courses will be the same as those given in the other quarters of the year. Address Wilburt C. Davison, M.D., dean.

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, Neil and Eleventh avenues, Columbus.—Bacteriology is the only course offered during the summer to advanced undergraduates and graduates. Address J. H. J. Upham, M.D., dean.

OKLAHOMA

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE, Third and Stiles streets, Oklahoma City.—During the session that begins June 10, courses will be offered in biochemistry, histology, including organology and embryology, physiology, bacteriology, anatomy and pathology. Address LeRoy Long, M.D., dean.

OREGON

UNIVERSITY OF OREGON MEDICAL SCHOOL, Portland.—Summer courses will be offered in certain preclinical and clinical departments, limited, however, to students regularly registered in the work of the medical school leading to the degree of Doctor of Medicine. Apply to Richard B. Dillehunt, M.D., dean.

TENNESSEE

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE, 879 Madison Avenue, Memphis.—All courses of the college of medicine will be offered during the regular summer quarter. However, it is not likely that many students not already enrolled will be accepted. Address O. W. Hyman, Ph.D., administrative officer.

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, Twenty-First and Edgehill, Nashville.—Short courses for postgraduates in medicine, and a regular course for physicians sent by the Commonwealth Fund will be offered. Address Waller S. Leathers, M.D., dean.

TEXAS

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, Dallas.—The summer session will begin June 15 and end August 1. Courses will be offered in bacteriology, embryology, histology, physiologic chemistry, clinical pathology and neuro-anatomy. These are equivalent to the courses of the regular session. Address W. H. Moursund, M.D., dean.

UNIVERSITY OF TEXAS SCHOOL OF MEDICINE, 912 Avenue B, Galveston.—Two weeks' postgraduate course for general practitioners of Texas will be given, June 1 to 13. This includes ward rounds, special clinics in eye, ear, nose and throat, diseases of children, and neuropsychiatry, lectures at the medical college and special laboratory courses in clinical pathology. Also by arrangement, short courses may be given in special subjects. Apply George E. Bethel, M.D., dean.

VIRGINIA

MEDICAL COLLEGE OF VIRGINIA, Twelfth and Clay streets, Richmond.—A postgraduate course for Negro physicians from June 15 to June 27, at the St. Philip Hospital clinic. The purpose is to give intensive instruction for a two weeks period to Negro physicians, primarily of Virginia, in the fields of medicine, pediatrics, obstetrics and surgery, as related to general practice. There will be lectures, demonstration of cases and assignment of cases for study in the wards of the St. Philip Hospital. There will also be laboratory assignments daily. Address Lee E. Sutton, Jr., M.D., acting dean.

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE, Charlottesville.—Courses in the medical sciences are offered for medical students who are deficient in these subjects and desire to make a review. There will be two terms: the first from June 22 to August 1, and the second from August 3 to September 5, in which the following subjects will be given: histology, embryology, anatomy, biochemistry, physiology and pharmacology. Address James C. Flippin, M.D., dean.

WISCONSIN

UNIVERSITY OF WISCONSIN MEDICAL SCHOOL, 412 North Charter Street, Madison.—During the summer session of 1931, courses will be offered to medical students in histology and organology, embryology, three

courses in anatomy, two courses in bacteriology, fourth year medicine, two courses in pharmacology, physiologic chemistry, advanced physiology and research and surgery. Address communications to Charles R. Bardeen, M.D., dean.

CANADA

DALHOUSIE UNIVERSITY FACULTY OF MEDICINE, Halifax, Nova Scotia.—A short "refresher" course lasting one week, early in September, will be offered to graduates in medicine. This is not a systematic course but is made up of clinics and lectures. For further information address the Secretary, Postgraduate Medical Course, 121 South Park Street, Halifax, N. S.

Book Notices

SOME ASPECTS OF THE CANCER PROBLEM: An Account of Researches Into the Nature and Control of Malignant Disease Commenced in the University of Liverpool in 1905, and Continued by the Liverpool Medical Research Organization (Formerly the Liverpool Cancer Committee), Together With Some of the Scientific Papers That Have Been Published. Edited by W. Blair Bell, B.S., M.D., F.R.C.S., Director of the Liverpool Medical Research Organization. Cloth. Price, $20 net. Pp. 543, with 273 illustrations. New York: William Wood & Company, 1930.

About ten years ago a woman in Liverpool, with an inoperable carcinoma of the breast, rapidly recovered with no other treatment than intravenous injections of colloidal or partly colloidal solutions of lead iodide. At this time the late J. George Adami was in Liverpool and, largely through his efforts, the Liverpool Medical Research Organization was established and its activities directed to ascertaining the effects of lead on malignant tumors. From a considerable group of investigators, stimulated by the vision and enthusiasm of Blair Bell, a busy surgeon in Liverpool, published announcements were made for a number of years. They dealt with the specific therapy of cancer with lead in different forms and with many other problems appurtenant to cancer. About forty of the articles appearing from 1924 to 1929 inclusive have been reprinted and assembled in this volume. One report, entitled "Colloidal Lead Organic Compounds in Relation to Cancer Therapy," pages 266-276, is new. Their arrangement does not follow the chronology of their appearance in journals, but they are grouped under such topics as the nature of cancer, etiology of malignant disease, statistics, and prevention of cancer. Under chemotherapy are treatment with lead and the general effects of lead. Semblance to an orderly treatise has been achieved by this grouping and by introducing between the articles brief comments, selections from addresses, editorials, and discussions at societies, so that the results of investigation by first one and then another, or by several authors, are encountered somewhat as are the separate chapters of a textbook.

How these articles from the Liverpool organization aroused interest and were followed by similar investigations in many different countries and institutes, and how inquiries have extended to the action on cancer of other metals are all well known. In view of the years of experimentation necessary to arrive at a few conclusions about the therapeutic value of radium and x-rays in the treatment of cancer, it is unwise to assume that anything approaching finality has been learned concerning treatment, either with metals in general or with lead in particular. It is not surprising that this effort at Liverpool, on such a comprehensive scale to learn whether lead is a remedy for cancer, had many interesting and valuable by-products. Among the more important are contributions to the action of heavy metals on living plant and animal tissues, valuable additions to the toxicology of lead, study of the concentration of hydrogen ions in the blood of animals with malignant tumors, and investigation of the similarity between the epithelium of the chorion and tumor cells. Although details and results of administering lead to 566 patients with cancer over a period of eight years are treated at length, they occupy only a small part of the volume.

This report is a good example of the way problems of cancer may be handled when funds for equipment, trained men and appropriate surroundings required by modern scientific research are devoted to such purposes. Every supposed cancer cure or measure offering possibilities of lessened suffering from cancer merits similar thorough and unprejudiced investigation.

OPUSCULA SELECTA NEERLANDICORUM DE ARTE MEDICA. Fasciculus octavus quem Curatores Miscellaneorum quae vocantur Nederlandsch Tijdschrift voor Geneeskunde collegerunt et ediderunt. Drei Grepen int de 16e Eeuwsche Geneeskunde. Vesalius—Lommius-Forestus. Cloth. Pp. 314. Amsterdam: Sumptibus Societatis, 1930.

In the earlier volumes of this series have appeared writings of Dutch physicians of diverse times. The present volume contains "three specimens of the medicine of the sixteenth century" by Vesalius, Lommius and Forestus.

The great Vesalius is represented by a little known letter on blood-letting in pleuritis, written in 1539. This is his first attack on the anatomic teachings of Galen and centers on the origin of the vena azygos and the course of the arteries in the chest wall. The letter is reproduced in the original Latin and in Dutch translation and is preceded by a valuable introduction by M. A. Van Andel in English.

Then comes the Latin text of 1560 and the English translation of 1732 by Thomas Dale of Medicinal Observations by Jodocus Lommius, 1506?-1558?, with an interesting introduction (English) by F. M. G. De Feijfer. This work by Lommius was published originally in Antwerp in 1560 and appeared again and again for the next two hundred years. "It is a return in the clinic to the sober observation, the simple representation, the matter-of-fact description" of Hippocrates and exercised a tremendous influence on the medical thought of its time. This is the concluding sentence of Lommius' description of Morbus venereus: "After the Disease is cured, some grow wondrous corpulent, others troubled with a Hoarseness; upon others, there remain unseemly Cicatrices, the marks of deep and filthy Ulcers."

The third specimen of sixteenth century medicine is the second book of Petrus Forestus' treatise of uroscopy in the Latin text of 1589 and the Dutch translation of 1626, "exposing very clearly the scandal, the craft of the Piss-gazers and the deceit of the Quacks, the stupidity of the Barbers, and furthermore their bold dulness that has ended many man's life." Again we are favored by a preface and biographic notes in English by M. A. Van Andel.

As stated in the preface to the volume by the president, G. Van Rijnberk, of the committee in charge of Opuscula Selecta, these specimens of medical writing in the sixteenth century "give an insight, not complete but yet attractive and instructive, in many important questions, with which the minds of that time occupied themselves." The volume compares favorably in interest with the preceding volumes of the series. It merits the warm welcome of students of medical history.

A CENTURY WITH NORFOLK NAVAL HOSPITAL, 1830-1930. A Story of the Oldest Naval Hospital, the Medical Department of the Navy and the Progress of Medicine Through the Past One Hundred Years. By Richmond C. Holcomb, M.D., F.A.C.S., Captain, Medical Corps, U. S. Navy. Price, $6.50. Pp. 543, with 42 illustrations. Portsmouth, Virginia: Printcraft Publishing Company, 1930.

The first naval hospital was established in Norfolk in 1830 on land purchased with tobacco. In his history of this oldest hospital, Captain Holcomb provides an historical background having to do with the early life of Virginia. He includes also the story of the medical corps of the United States Navy from 1775 to 1830. The conception of the hospital began in 1827 and Dr. Holcomb uses numerous quotations from correspondence and other documents associated with this building. He shows how this institution kept abreast of medical science and applied it regularly to the patients who passed through its rooms and wards. The volume is almost a reflection of the medical history of our navy. It is handsomely illustrated and should be of interest not only to those especially interested in the navy but to every one interested in medical history.

THE HAIR: ITS CARE, DISEASES AND TREATMENT. By W. J. O'Donovan, O.B.E., M.D., M.R.C.P., Physician to the Skin Department and Lecturer on Dermatology and Syphilology at the London Hospital. Cloth. Price, $3.50. Pp. 218, with 40 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1930.

Notwithstanding the fact that the usefulness of the hair to the human being is of little or no moment, there is probably no subject of greater interest to the public generally. The public's interest is reflected in the demands made on physicians for advice concerning methods of causing the hair to stay in, to retain its color, to be naturally curly or straight or otherwise to meet the

demands of the fashion of the day. The book by O'Donovan is distinctly a medical book, devoted largely to diseases of the hair, their diagnosis and treatment. The author has little that is new to propose. His work represents established views. He considers the use of ultraviolet rays, reflecting the published evidence, without attempting to differentiate seriously that which is scientific from that which is unscientific.

THE SOCIALIZATION OF MEDICINE. Compiled by Edith M. Phelps. The Reference Shelf, Volume VII, Number 1. Cloth. Price, 90 cents. Pp. 190. New York: H. W. Wilson Company, 1930.

To aid those who are especially interested in debating on the subject of socialization of medicine the H. W. Wilson Company has published, as part of the series called "The Reference Shelf," an outline giving the pros and cons, a bibliography, including references to many of the important articles on the subject published during recent years, a number of definitions, and abstracts covering various aspects of the subject. The material is developed in such a form as to make it exceedingly useful for this purpose. The number of abstracts is not great and the volume will be excellently supplemented by the handbook on the subject now made available by the American Medical Association.

LEHRBUCH DER INNEREN MEDIZIN. Band I. Von Professor Dr. Theodor Brugsch, o. ö. Professor der Medizin an der vereinigten Friedrichs-Universität Halle-Wittenberg. (In two volumes.) Paper. Price, 27 marks. Pp. 862, with 185 illustrations. Berlin: Urban & Schwarzenberg, 1930.

Dr. Brugsch, professor of medicine in Halle, contributes a textbook of medical practice based on advances in the fundamental medical sciences and on new specialties in medical treatment. It is, thereby, a different type of textbook. After his introduction, the author turns his attention to dietetics, an indication of the increasing importance of the relationship of diet to therapy. Special attention is given to the Gerson diets. Unfortunately, the section on diet, which is quite scientific, is followed by one on drugs containing references to many complex and unestablished preparations. There follow sections on hydrotherapy, baths, electrotherapy and roentgenotherapy. Another indication of German tendencies is the section on constitution and disturbances of growth. Thereafter, the author takes up the glands of internal secretion, the diseases of metabolism, obesity and then the infectious diseases, syphilis, heart disease and disturbances of the circulation and of the blood. Since this is the first volume, the index is not yet available. The material is set forth simply and in most instances represents current conceptions. The volume is in every sense of the word a personal text but with frequent references to the literature when basic researches are concerned.

PRACTICAL APPLICATIONS OF HEREDITY. By Paul Popenoe. Cloth, Price, $1. Pp. 128. Baltimore: Williams & Wilkins Company, 1930.

Most of the essays in this book have appeared in various periodicals. They deal with such interesting aspects of the problems of eugenics and heredity as are indicated by the following titles:

Will Your Son Be a Genius?
Heredity and the "Infant Prodigy."
The Rôle of Heredity in Crime.
Your Children's Chance to Be Talented.
Heredity and the Average Length of Life.
Proving Paternity by Heritable Characters.
Selecting a Child for Adoption.

The author is well known for his contributions to this field. He writes nontechnically, and his book is therefore to be recommended to any one interested in those subjects.

THE CLINICAL INTERPRETATION OF AIDS TO DIAGNOSIS. Volume I. (Various Authors.) Cloth. Price, 10/6 net. Pp. 380. London: "The Lancet," Ltd., 1930.

This is a reprint from the London *Lancet* constituting a collection of a series of articles that have run through numerous issues. It makes available to the practitioner the data concerning various laboratory methods of examination, their technic of determination and their application in clinical practice. The book is exceedingly useful. The men who wrote it are known as authorities in the fields they discuss.

MENTAL MEASUREMENT OF PRESCHOOL CHILDREN, WITH A GUIDE FOR THE ADMINISTRATION OF THE MERRILL-PALMER SCALE OF MENTAL TESTS. By Rachel Stutsman, Ph.D., Psychologist, Merrill-Palmer School. Measurement and Adjustment Series. Edited by Lewis M. Terman. Cloth. Price, $2.20. Pp. 368, with 30 illustrations. Yonkers-on-Hudson: World Book Company, 1931.

Dr. Stutsman considers the various scales that have been developed for measuring the mentality of children. She presents her research in standardizing these scales and concludes with illustrative case studies revealing the application of the tests to children of foreign birth and children with special difficulties. An appendix supplies a bibliography of recent writings in this field. The book is practical and will be of help to any one engaged in such work.

ÜBER HOMOSEXUALITÄT: EIN BEITRAG ZU EINER MEDIZINISCHEN ANTHROPOLOGIE. Von Dr. Oswald Schwarz, Privatdozent an der Universität Wien. Paper. Price, 8 marks. Pp. 122. Leipzig: Georg Thieme, 1931.

There are so many new ideas in this work that it is impossible to give them in detail here or to enter into a discussion concerning the author's theories of the various problems presented. He points out that the study of homosexuality has reached a dead point within the last five years, as there are two separate and in a way antagonistic conceptions of this condition: the constitutional or the endocrine theory, and the neurotic or psychoanalytic theory. Modern science demands a newer conception, which might be designated the morphology of human conduct. In this newer conception the facts should not merely be studied in an abstract theoretical form, as through physics, biology, psychology or even clinical medicine, but should be taken in their entirety, in their relationship to the entire human development—to a medical anthropology.

Looking at hermaphrodism from this standpoint, this condition appears rather late in the evolution of the human being. It is common and physiologic in some of the lower forms, as in certain forms of tapeworms and snails. Every animal possesses originally both male and female organs, but through the process of evolution there is finally developed a stage at which these organs become separated into two distinct sexes. Each sex then develops its particular sexual apparatus and as a result of this development the entire psychophysical character of the particular animal is developed. A study of the pathologic condition of hermaphrodism in the human adult shows only a superficial analogy to the physiologic hermaphrodism of the lower form of creation. In no sense can hermaphrodism be considered as an atavistic condition. After many years of study, in 1912 several authors came to the conclusion that hermaphrodism was merely a stage in evolution. In other words, at first everything was masculine; then came hermaphrodism, to be followed at a later stage by definite female development and finally by the complete female. This theory was elaborated by Goldschmidt, who succeeded in one of the lowest forms of creation, by various crossings, to produce every form of hermaphrodism in regular morphologic order.

As is well known, the process of conception involves the union of male and female elements. Although at the moment of conception it is definitely determined whether the offspring will be male or female, various circumstances seem to indicate that the original bisexual character of the fecundated egg is carried, at least in potentia, throughout the entire life of the individual. In the normal process of evolution or development, as soon as the particular sex is determined at fecundation, the opposite sex portion undergoes atrophy as it were and becomes rudimentary. In the abnormal cases, as represented by the hermaphrodite, the commencement of development is as before, but soon the opposite sex begins to develop also, and actually develops more rapidly than the normal sex, and the entire psychosexual behavior of the individual comes under the control or influence of the opposite sex with the resultant abnormal condition. It all depends at what stage in the development the abnormal development of the opposite sex takes place; if it takes place early, the individual will have more of the opposite sex characteristics than the normal characteristic; in other words, he will be more of the opposite sex than of his normal type. If, however, it develops later, he will be more of the normal type, but with more or less characteristics of the opposite sex.

In his discussion of the condition of homosexuality, the author points out that this condition is considered by different people from entirely different standpoints. The lawyer looks at it as a criminal offense, the clergyman as a sin, the pedagogue as a naughty practice, the physician as a disease, and for the invert himself it is a concrete existence.

The biologic theory of homosexuality is that in the normal individual the contrary sexual components are in harmony with the entire psychic make-up of the individual. If this harmony is destroyed, the contrary sexual feeling develops abnormally, and then there is such a state of affairs as, for instance, a person anatomically a male but with the sexual feelings of a female.

It is important to emphasize that the homosexual person is not necessarily a hermaphrodite; on the contrary, the majority of homosexuals are anatomically absolutely normal. An examination of 500 male homosexuals over 20 years of age disclosed the fact that in only 14, 3 per cent, was there a complete absence of a beard; in a few others the beard was not fully developed, while in 330, 67 per cent, the beard was as normally developed as in any other normal male. Anthropometric measurements of a large number of homosexuals would seem to indicate that there exists a variation from the normal in some insignificant factors.

Is there a perfect harmony between the homosexual characteristics of the individual and the other psychologic characteristics? Homosexuals are found whose psychologic traits are not in any way different from the normal. Moreover, as is well known, the condition is not at all incompatible with great genius. Kronfeld made a detailed study in this regard of 120 homosexuals and found one fifth of them absolutely normal; in the remaining four fifths he found insignificant but distinct neuropathic conditions. In another group there were a small number of cases which showed combined male and female characteristics. Hirschfeld found only 48 cases of transvestism among 500 homosexuals. In view of the importance the average female gives to matters of dress, the proportion was small. A third group consists in the taking on of the entire personality of the opposite sex. Among this group are effeminate males and, on the other hand, females with strong masculine characteristics.

Whatever is at the bottom of the strange anomaly of homosexuality, it is not hermaphrodism. If a female hermaphrodite in whom the clitoris is elongated to the size of a penis indulges in coitus, she does so with another female. With the homosexual, the opposite state of affairs obtains.

There is still another form of homosexuality which has no biologic origin but gradually develops with the developing child. In this group are the common conditions sometimes found in schools and colleges in which the female falls in love with some of her female companions or with her female teacher and vice versa. It is rather unfortunate that so little is known about the psychology of this condition, and modern psychoanalysis attempts to explain it on the freudian theory.

Finally, what is the homosexual striving for? Is it for his ordinary rights as a citizen, for freedom from criminal prosecution, or for simple permission to be allowed to dance in public dance halls? Without doubt the limitations mentioned are some of the factors that he objects to. But the main factor is the sense of isolation, which he feels keenly and, strange to state, the author points out that the greatest geniuses who at the same time are the most marked sexual perverts are the very ones who shun acquaintances with those similarly afflicted as themselves. The whole situation is an exceedingly tragic one. In other unfortunate situations, such as that of a workman who through his own carelessness gets seriously injured and finally permanently handicapped, or that of a criminal who gets into trouble through his own actions, there is always the element of fault or crime which enters the condition; but with the homosexual no such element enters; he is discriminated against for what is absolutely not his own fault. The homosexual does not suffer from his disease; in fact, he does not consider his condition a disease, and he can attain the heights in literature and art just like any normal person, but his entire psychic life is cramped by the criticism of his fellow men. This is the anthropologic structure of the homosexual.

DEVELOPMENTAL ANATOMY: A TEXT-BOOK AND LABORATORY MANUAL OF EMBRYOLOGY. By Leslie Brainerd Arey, Robert Laughlin Rea Professor of Anatomy, Northwestern University. Second edition. Cloth. Price, $6.50. Pp. 563, with 532 illustrations. Philadelphia: W. B. Saunders Company, 1930.

This standard work has been expanded in various ways. More emphasis has been laid on the general aspects of the subject, in keeping with the fuller recognition that is being accorded the fundamental medical courses as biologic disciplines. This elevation of embryology from its position as the mere handmaid of gross anatomy does not obscure its chief function, which is to rationalize the normal and abnormal structure of the body and the relations of the various parts. Embryologic interpretations of many more anomalous conditions have been included. A table of salient features in the growth of the human embryo during each of the first sixteen weeks of pregnancy has been added. This and similar summaries are substantially correct and should be useful.

NEW ENGLAND ESSAYS: THE CHALLENGE OF AN INDIVIDUALIST. By Edward H. Packard. Cloth. Price, $5. Pp. 191, with illustrations. Boston: Four Seas Company, 1929.

In this volume the author has collected about 100 essays on subjects that have interested him. Among them are attacks on animal experimentation, since Mr. Packard is the state agent of the S. P. C. A. The book is apparently copyrighted by the author and printed to promote his views and himself. It is doubtful whether it will serve any literary or artistic purpose. Indeed, it is so crude that it is hardly likely to interfere much with the advancement of science.

DAS WUNDER IN DER HEILKUNDE. Von E. Liek. Paper. Price, 3.60 marks. Pp. 208. Munich: J. F. Lehmanns Verlag, 1930.

Dr. Liek is especially well known for his contributions on the subject of state medicine. The present volume concerns faith healing with emphasis on some of the modern miracle men who have attracted thousands of people to their shrines. Thus, Dr. Liek offers complete discussions of Zeileis, Steinmeyer, Coué and Kneipp. He also has chapters on cancer, on the magical treatment of warts and on the spiritual aspects of medical treatment. The book is written in fine German style and will be found of interest by every medical reader.

THE PUBLIC'S INVESTMENT IN HOSPITALS. By C. Rufus Rorem. Cloth. Price, $2.50. Pp. 251, with 6 illustrations. Chicago: University of Chicago Press, 1930.

The material presented in this volume is associated with the work of the Committee on the Costs of Medical Care. The book presents valuable data relative to the 7,000 hospitals in the United States having to do with the amount and distribution of the capital investment, the capital valuation and accounting, and the relationship of the public to the facts that are developed. It seems to be necessary to invest at least $5,000 a bed for the hospitalization of patients suffering with acute diseases, which means $500,000 for a hospital of 100 beds. The costs of hospital care have usually required community support, and the history of hospitalization explains why physicians have not done well as owners of hospitals. It explains also why hospitals seldom, if ever, are money-making institutions. The number of proprietary hospitals is steadily decreasing. The author estimates that maintenance of the hospital will demand $1 per capita and that capital investment is $25 per capita. The author feels that the nature of hospital service makes it a public utility and that the economic conditions regarding hospitals should be considered on this basis.

AUS DER MEDIZIN DES RINASCIMENTO AN DER HAND DES LEBEN VON BENVENUTO CELLINI NACH DER ÜBERSETZUNG GOETHES. Von Paul Strassmann, Dr. Med., a. o. Prof. für Geburtshilfe und Gynäkologie an der Universität Berlin. Boards. Price, 13 marks. Pp. 56, with illustrations. Leipzig: Georg Thieme, 1930.

In an exceedingly artistic volume, handsomely illustrated, the author presents the medical aspects of the life of Benvenuto Cellini as revealed in Goethe's translation of the notable autobiography. The great Italian sculptor and painter, like all the people of his time, was interested also in medical affairs and he reflected these interests in his writing. Any one at all concerned with the medicine of the time of Cellini will find this book a fascinating contribution to the subject.

Medicolegal

Infection Following Extraction of a Tooth

(Barham v. Widing (Calif.), 288 P. 716)

The defendant, a licensed dentist, extracted the plaintiff's left lower first molar tooth, after injecting procaine hydrochloride (novocain) into the gum. After the extraction, a pus pocket was found on the distal root of the tooth. The patient bled profusely, and after a few days of ineffectual attempts to control the hemorrhage, the dentist-defendant referred his patient to a physician. The physician, ten days after the tooth had been extracted, found a large abscess on the lower left jaw, the place where the hypodermic needle had been inserted into the gum being the primary point of infection. The patient lost seven lower teeth and a portion of his lower jawbone. A necessary operation left an unsightly scar on his face. The patient sued and obtained a verdict. The dentist-defendant appealed to the District Court of Appeal, Third District, California.

The complaint was based on two charges: 1. That the defendant was negligent in extracting the tooth and thereafter in treating and caring for the wound. 2. That the defendant was negligent in the use of the hypodermic needle in establishing local anesthesia.

The case was tried on the theory that it is a part of a dentist's professional duty to treat the bruised and bleeding socket from which a tooth has been removed. Said the appellate court:

> This case was tried on the theory that it is a part of a dentist's professional duty to treat the bruised and bleeding socket from which a tooth has been removed. It is only common knowledge to declare this is a necessary part of the professional operation of extracting a tooth. If a dentist fails to use ordinary precaution in subsequently protecting the bruised and sensitive socket against infection from foreign matter, or fails to use reasonable care to stop unusual and profuse bleeding from the socket as the result of extracting the tooth, he will be guilty of negligence in the operation. These incidents to the operation of extracting a tooth are just as essential as sterilizing the parts and sewing up the abdominal incision after performing an operation for appendicitis. The restoring of a healthy condition to the parts which are injured in the performance of an operation is just as necessary as the removal of the diseased portion. Both proceedings are necessary parts of the same professional operation. A failure to reasonably sterilize and treat the socket from which a tooth has been removed, to prevent infection, will ordinarily render a dentist liable for malpractice if the omission results in injury to the patient.

The court concluded, however, that the evidence in the case showed that the socket from which the tooth had been extracted was not the origin of the infection and that the dentist therefore was not negligent in his postoperative treatment of the empty socket.

The dentist-defendant asserted that the evidence was not sufficient to establish negligence on his part, in connection with the administration of the local anesthetic, because there was no direct testimony that either the needle or the solution which was used in administering the anesthetic was not sterile. There is, said the appellate court, a remote possibility that the infection developed from some cause other than the defendant's failure to sterilize the needle or the gum. The evidence was sufficient, however, continued the court, to warrant the jury in finding that the infection was caused by the dentist's neglect to follow reasonable precautions, notwithstanding his testimony to the contrary. Because of the very subtleness of the origin and development of disease, less certainty is required in proof thereof. It is not necessary in the trial of civil cases that the circumstances shall establish the negligence of the defendant as the proximate cause of the injury with such absolute certainty as to exclude every other conclusion. It is sufficient if there is substantial evidence reasonably to support the judgment.

Cases that depend on knowledge of the scientific effect of medicine or the result of surgery must ordinarily be established by the expert testimony of physicians. This rule, however, applies only to such facts as are peculiarly within the knowledge of such professional experts, and not to such facts as may be ascertained by the ordinary use of the senses of a non-expert. It was not necessary, therefore, for any dentist or physician to state that the conduct of the dentist was negligent or in conflict with the usual established practice of the profession in that vicinity, to administer a local anesthetic for the purpose of extracting a tooth without sterilizing the needle or the flesh into which it was inserted. The court will take judicial notice of the necessity to use ordinary care to procure sterilization under such circumstances. The case was tried on the theory that every one concerned recognized that duty.

The instruction of the trial court was erroneous, however, which told the jury that if it believed from the evidence that the defendant used or employed either a hypodermic needle or a solution that was not sterile, in injecting the anesthetic into the plaintiff's gum, and if he thereby proximately caused the infection, the plaintiff was entitled to recover damages. The instruction made no reference to negligence. It based the liability of the dentist-defendant solely and absolutely on his use of an unsterile needle or solution, regardless of his knowledge or ignorance of its condition and regardless of the exercise of due care or the use of the ordinary precautions employed by his profession. Nowhere was the jury informed that the liability of the dentist-defendant depended on proof that he had *negligently* used an unsterile needle or solution. This error was not overcome by other instructions. The judgment of the trial court was therefore reversed.

Society Proceedings

COMING MEETINGS

American Medical Association, Philadelphia, June 8-12. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association for the Study of the Feeble-Minded, New York, May 25-28. Dr. Howard W. Potter, 722 West 168th Street, New York, Secretary.

American Association for Thoracic Surgery, San Francisco, July 1-3. Dr. Duff S. Allen, Washington University Medical School, St. Louis, Secretary.

American Bronchoscopic Society, St. Louis, June 6. Dr. Louis H. Clerf, 128 South 10th Street, Philadelphia, Secretary.

American Dermatological Association, Toronto, Canada, June 15-17. Dr. William H. Guy, 500 Penn Avenue, Pittsburgh, Secretary.

American Heart Association, Philadelphia, June 9. Dr. Irl C. Riggin, 450 Seventh Avenue, New York, Executive Secretary.

American Laryngological Association, Atlantic City, June 15-17. Dr. George M. Coates, 1721 Pine Street, Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, St. Louis, June 3-5. Dr. R. L. Loughran, 33 East 63d Street, New York, Sec'y.

American Neurological Association, Boston, May 27-29. Dr. Henry A. Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, Asheville, N. C., June 1-3. Dr. Emory Hill, 501 East Franklin Street, Richmond, Va., Secretary.

American Otological Society, Briarcliff, New York, June 17-19. Dr. Thomas J. Harris, 104 East 40th Street, New York, Secretary.

American Physical Therapy Association, Philadelphia, June 8-9. Dr. C. C. Vinton, 585 West End Avenue, New York, Secretary.

American Proctologic Society, Philadelphia, June 7-9. Dr. Curtice Rosser, Medical Arts Building, Dallas, Texas, Secretary.

American Psychiatric Association, Toronto, Canada, June 1-5. Dr. Clarence O. Cheney, Hudson River State Hospital, Poughkeepsie, N. Y., Secretary.

American Society of Clinical Pathologists, Philadelphia, June 7-9. Dr. A. S. Giordano, 604 North Main Street, South Bend, Ind., Secretary.

American Surgical Association, San Francisco, June 29-July 1. Dr. Lincoln Davis, 205 Beacon Street, Boston, Secretary.

American Therapeutic Society, Atlantic City, June 5-6. Dr. Grafton Tyler Brown, 1801 I Street, N. W., Washington, D. C., Secretary.

Association for the Study of Internal Secretions, Philadelphia, June 8-9. Dr. F. M. Pottenger, Monrovia, Calif., Secretary.

Maine Medical Association, Greenville, June 25-27. Dr. Philip Webb Davis, 22 Arsenal Street, Portland, Secretary.

Massachusetts Medical Society, Boston, June 8-10. Dr. Walter L. Burrage, 182 Walnut Street, Brookline, Secretary.

Montana, Medical Association of, Bozeman, July 8-9. Dr. E. G. Balsam, 208 North Broadway, Billings, Secretary.

New Jersey, Medical Society of, Asbury Park, June 3-5. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

New York, Medical Society of the State of, Syracuse, June 1-3. Dr. Daniel S. Dougherty, 2 East 103d Street, New York, Secretary.

North Dakota State Medical Association, Aberdeen, S. D., June 2-4. Dr. Albert W. Skelsey, 18 Broadway, Fargo, Secretary.

Pacific Coast Oto-Ophthalmological Society, Los Angeles, May 28-30. Dr. Walter F. Hoffman, 817 Summit Avenue, Seattle, Secretary.

Pacific Northwest Medical Association, Seattle, June 25-27. Dr. Frederick Epplen, Stimson Building, Seattle, Secretary.

Rhode Island Medical Society, Providence, June 4. Dr. J. W. Leech, 369 Broad Street, Providence, Secretary.

South Dakota State Medical Association, Aberdeen, June 2-4. Dr. John F. D. Cook, Langford, Secretary.

Wyoming State Medical Society, Rawlins, July 13-14. Dr. Earl Wheelon, 50 North Main Street, Sheridan, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

13: 363-648 (March) 1931

Salmon Poisoning. B. T. Simms, C. R. Donham and J. N. Shaw, Corvallis, Ore.—p. 363.
*Analysis of 3,122 Diphtheria Case Histories. Ida M. Stevens.—p. 392.
*Thermal Exchanges Between Bodies of Men Working and Atmospheric Environment. F. C. Houghten, W. W. Teague, W. E. Miller and W. P. Yant, Pittsburgh, Pa.—p. 415.
Effect of Variations in Relative Humidity on Skin Temperature and Sense of Comfort. U. Miura, Baltimore.—p. 432.
*Effect of Irradiation with Ultraviolet Light on Frequency of Attacks of Upper Respiratory Disease (Common Colds). J. A. Doull, M. Hardy, J. H. Clark and N. B. Herman, Baltimore.—p. 460.
*Behavior of Lead in Animal Organism: Tetra-Ethyl Lead. R. A. Kehoe and F. Thamann, Cincinnati.—p. 478.
Antidiphtheria Group-Agglutinin in Antiserums of Laboratory Immunized Animals. J. M. Neill, L. V. Richardson, W. L. Fleming, J. Y. Sugg and E. L. Gaspari, Nashville, Tenn.—p. 499.
Id.: Agglutinin in Serum of Adult People. J. M. Neill, W. L. Fleming and L. V. Richardson, Nashville, Tenn.—p. 516.
Individual Persons with High Levels of Antidiphtheria Group Agglutinin. J. M. Neill, W. L. Fleming and E. L. Gaspari, Nashville, Tenn.—p. 532.
Study on Variabilities in Dimensions and Numbers of Discharged Cysts of Giardia Lamblia (Stiles, 1915) from Day to Day Under Normal Conditions. H. Tsuchiya, Baltimore.—p. 544.
*Hexylresorcinol in Treatment of Human Ascariasis. P. D. Lamson, E. L. Caldwell, H. W. Brown and C. B. Ward.—p. 568.
Relation of Balantidium Coli Infection to Diet and Intestinal Flora of Domestic Pig. E. Schumaker, Baltimore.—p. 576.
Antigens and Methods for Performing Complement-Fixation Test for Yellow Fever. M. Frobisher, Jr., Bahia, Brazil.—p. 585.
Effects of Certain Poisons on Mosquito Larvae. M. Frobisher, Jr., and R. C. Shannon, Bahia, Brazil.—p. 614.
Influence of Soaps on Germicidal Properties of Certain Mercurial Compounds. B. Hampil, Baltimore.—p. 623.
Purified (Protein Free) Virus of Chicken Tumor No. 1. M. R. Lewis and W. Mendelsohn, San Francisco.—p. 639.
Anopheles (Anopheles) Neomaculipalpus. New Species of Arribalzagaia Group of Anopheles from Panama. D. P. Curry, Panama.—p. 643.
Recognition of Anopheles Argyritarsis by Characteristics of Male Genitalia. D. P. Curry, Panama.—p. 648.

Analysis of 3,122 Diphtheria Cases.—Variations in diphtheria fatality rates in a group of 3,122 California cases have been analyzed by Stevens. Definite evidence in favor of early administration of antitoxin was found. The chances for recovery are much greater today in the early stages of the disease, but more people seem to die during the period of convalescence with diphtheria given as the cause of death. The greater the delay, the higher the fatality rates and the greater the number of late deaths. After the fifth day treatment had little, if any, therapeutic value. There were differences in the fatality rates for communities of different sizes. The rural territory carried the highest case fatality rates for all age groups under 20 (there was no significant difference over 20) and for all methods of treatment, as to size or number of doses, method of injection, or delay in injection. There were differences in fatality rates among the different age groups. Only those receiving a single treatment were analyzed as to age differences. The younger the child the higher the death expectancy, regardless of the number of units administered, the method of administration or delay in treatment, with the exception of infants under 1 year treated within forty-eight hours.

Thermal Exchanges Between Men and Environment.—A series of work tests were made by Houghten and collaborators on four normal male subjects at effective temperatures of —2 to 32.6 C. and relative humidities of 20 to 95 per cent. All the subjects were normally clothed and had previously partaken of their regular diet. The work was performed on a special work machine and in the majority of the tests the rate was 4,578 Kg. an hour. However, a few tests were made at half and a few at double this rate. A special test is reported showing the increase in metabolic rates for different states of activity. The efficiency of the human body as an engine is shown to vary from 11 to 20 per cent in performing this type of work. Metabolic processes as measured by gaseous exchange reach equilibrium very quickly after changes in state of activity. A minimum energy production or metabolic rate of 119 calories per square meter an hour was found for men working at a rate of 4,578 Kg. an hour in the temperature range from 6 to 24 C. effective temperature. Energy production within, and total heat loss from, the body are shown to be functions of the effective temperature index for men normally clothed, working. Total heat loss is divided into loss by evaporation and combined loss by radiation and convection, both of which are shown to be functions of dry bulb temperature. All curves for working men show similar characteristics to those for men seated at rest but are of greater magnitude, the points of change occurring at lower temperatures for men working. Excessive heat produced in the body due to work is shown to be dissipated largely by increased evaporation controlled by the availability of perspiration. Change from insensible to sensible perspiration takes place at 10 and 13.9 C. effective temperature with 95 and 20 per cent relative humidity, respectively.

Ultraviolet Irradiation and Frequency of Common Cold.—A group of adult volunteers, numbering 363, was kept under observation by Doull and collaborators from Sept. 29, 1929, to May 31, 1930, a period of thirty-five weeks, and a vigorous effort was made to secure reports of all cases of upper respiratory disease (common colds). From this number, approximately one half were selected at random for irradiation, which was given over the first thirty-one weeks of the period. Mercury vapor lamps were used and the intensity of erythema-producing rays was measured biweekly. The dosage was light to moderate, the individuals being stripped to the waist and exposed, on either the chest or the back on each occasion, to that dose which, from previous experience with the subject, seemed likely to produce only a minimal erythema. Total incidence for the period was slightly higher for the irradiated (receiving more than ten treatments) than for the controls. Also cases of a more severe type, as evidenced by absence from duty and confinement to bed, by occurrence of fever, by productive cough or by long duration, were just as frequent in the irradiated as in the control group.

Behavior of Lead in Animal Organism.—Kehoe and Thamann describe experiments which show that tetra-ethyl lead is absorbed through the skin. The initial distribution of the lead in the tissues in rapid tetra-ethyl lead absorption corresponds to that of an oil-soluble material and indicated therefore that some portion of the tetra-ethyl lead is absorbed and circulates as such. However, tetra-ethyl lead is rapidly decomposed by the tissues, including the skin, so that only a small portion of the lead found later in the blood is in the form of tetra-ethyl lead. As a net result, after a period of from three to fourteen days, all of the lead in the animal tissues is distributed in a manner characteristic of water soluble compounds. In small dosages the factors of rapid decomposition and low concentration in the blood so interfere with the distribution of tetra-ethyl lead as such as to prevent its primary absorption by the nervous system. Even when absorbed as the tetra-ethyl compound, the excretion follows quantitatively that of water soluble lead compounds. Tetra-ethyl lead poisoning is therefore not different from lead poisoning occasioned by other lead compounds. Evidence is adduced showing that tetra-ethyl lead absorption from gasoline in concentrations not in excess of 0.1 per cent is inappreciable.

Hexylresorcinol in Treatment of Human Ascariasis.—Lamson and collaborators state that hexylresorcinol given in crystalline form in hard gelatin capsules in doses of 1 Gm. to adults and 0.5 Gm. to children on an empty stomach in the morning and followed by a purge of magnesium sulphate in twenty-four hours removed between 95 and 100 per cent of the worms in the cases of human ascariasis treated. No symptoms of any importance followed these administrations. A dose of 0.5 Gm. removed 76 per cent of the worms from adults. The ascaricidal properties of hexylresorcinol are greatly reduced

when this substance is given in a solvent such as vegetable oils or glycerin, or when food is taken just before or after treatment.

American J. Obstetrics & Gynecology, St. Louis

21: 301-454 (March) 1931

Certain New Observations on Action of Anterior Pituitary. L. Kraul, Baltimore.—p. 301.
*Monilia Vulvovaginitis. E. D. Plass, H. C. Hesseltine and I. H. Borts, Iowa City.—p. 320.
Case of Floating Uterus with Calcified Pedunculated Fibroids Presenting Aneurysms of Aorta and Right Innominate Artery. B. H. Archer and M. Greenberg, New York.—p. 335.
Miostagmin Reaction in Diagnosis of Uterine Cancer. L. Schneider, Brooklyn.—p. 340.
Psychotherapy in Gynecologic Service. M. D. Mayer, New York.—p. 357.
*Trichomonas Vaginalis Vaginitis in Pregnancy. P. B. Bland, L. Goldstein and D. H. Wenrich, Philadelphia.—p. 365.
Study of Neonatal Deaths Occurring in 6,000 Consecutive Deliveries. E. C. Lyon, Jr., and G. G. Bemis, New York.—p. 373.
*Incidence and Treatment of Toxemia of Late Pregnancy in Philadelphia. E. A. Schumann, Philadelphia.—p. 381.
Teaching of Obstetrics and Maternal Mortality. P. Findley, Omaha.—p. 390.
*Analysis of 128 Interposition Operations. P. Meshberg, Philadelphia.—p. 398.
*Simple, Rapid Procedure for Laboratory Diagnosis of Early Pregnancies. M. H. Friedman and M. E. Lapham, Philadelphia.—p. 405.
Thymophysin in Selected Cases of Uterine Inertia. C. P. Bauer, Chicago.—p. 411.
*New Method for Determining Patency of Tubes in Course of Abdominal Operations. Q. U. Newell, St. Louis.—p. 414.

Monilia Vulvovaginitis.—According to Plass and collaborators, *Monilia* is frequently present in the vaginal secretions of patients with vulvovaginitis and appears to be concerned directly with the etiology of the clinical condition, although normal individuals may harbor the fungi for long periods without showing vaginal irritation. Pregnancy and diabetes are definite predisposing factors, and menstruation may be, since sexually active women are more prone to the infection. Parous women are more often infected, but children, virginal adults and senile women may likewise show the organisms. In the majority of instances the mode of infection cannot be demonstrated. High acidity of the vaginal secretion favors the growth of *Monilia* but is not essential. The chief symptoms of the infection are itching, burning and smarting of the lower vagina and vulva. Digital and speculum examinations, and coitus are painful. A profuse leukorrhea rarely appears, and only occasionally is the secretion characteristic, when it contains small white flakes of thrush-like material. Varying degrees of vaginitis are encountered, with, occasionally, the appearance of definite vaginal or cervical thrush. Complications are rare. *Monilia* vaginitis tends to undergo spontaneous relief, but occasionally becomes chronic and may produce recurrent irritation over a period of months or years. Delivery usually leads to complete relief in pregnant women, while menstruation generally has the same effect temporarily in the nonpregnant. Gentian violet, in 1 per cent aqueous solution, applied locally affords the best method of treatment. Alkaline douches may be of some value. *Monilia* vaginitis in pregnant women is a definite source of infection in sporadic outbreaks of oral thrush in the new-born.

Trichomonas Vaginitis in Pregnancy.—Bland and collaborators found *Trichomonas vaginalis* in the vaginal secretion of 61, or 21 per cent, of 300 gravid women examined. The morphology of the organism is briefly described. The parasite is a more common invader of the vaginal tract of the Negro woman, being found in 54, or 32 per cent, of Negro patients and in only 13, or 9.5 per cent, of 136 white patients. Eight, or 13 per cent, of the patients with vaginal trichomoniasis complained of local symptoms. Vigorous and repeated mechanical cleansing is the most important step in the treatment of the vaginitis associated with this parasite. Finally, it is the belief of the authors that under suitable conditions the organism may assume pathogenic proclivities similar to other organisms or, in association with bacteria, may give rise to serious local or ascending infection of the genito-urinary tract, particularly in the puerperium.

Incidence and Treatment of Toxemia of Late Pregnancy.—Schumann presents the report of the Committee of the Obstetrical Society of Philadelphia on the incidence and treatment of the toxemia of late pregnancy in Philadelphia. He states that in 1928 forty-nine women and in 1929 thirty-six women in Philadelphia died of the various toxemias of pregnancy. This survey lists six deaths in twenty-nine women with eclampsia alone, fourteen of whom received prenatal care. In consideration of these facts, and likewise that the cause of toxemia is unknown, and finally in consideration of the state of the data of laboratory investigations summarized, it may be suspected that the prenatal clinics are not functioning as efficiently as they should. It is recommended that the chiefs of obstetric services exercise definite supervision and that they attend personally and frequently the prenatal clinics of their departments so that inefficient officers and nurses may be recognized early and that the necessary routine may not degenerate into a mechanical and routine performance. Exclusive dependence on a rise in blood pressure to indicate the first evidence of toxemia should be avoided. More regular and more intelligent use of blood chemical and other metabolic determinations as well as more complete urinalyses should be employed in the clinic. The history of preexisting nephritis or of toxemia in previous pregnancies should place the medical attendant on his guard, since all patients in this series presenting such histories developed severe toxemia. Treatment of late pregnancy toxemia has become fairly standardized in Philadelphia, the general rule being elimination, followed by a modified Stroganoff procedure should evidence of nervous irritability develop, and further followed by induction of labor and surgical delivery in the event of failure on the part of the patient to improve. Inhalation anesthesia to combat convulsions is no longer recognized as a part of the therapeutics of eclampsia. The use of dextrose is a routine in many clinics. In eleven patients subjected to cesarean section there was no maternal mortality. The total mortality of 5.4 per cent is well on the low side in the management of this complication of pregnancy. The fetal mortality remains high, 31.6 per cent. In the light of present knowledge this death rate cannot be greatly reduced, and it would seem that the efforts of obstetricians should be directed toward means of preserving more of these infant lives. Patients recovering from preclamptic and eclamptic toxemia in general were discharged in good condition with but slight evidences of permanent kidney or cardiovascular damage. True, nephritis toxemia left the patient with permanently damaged kidneys.

Interposition Operations.—Meshberg analyzes the results of 128 interposition operations performed for prolapse of the uterus. Ninety-two patients were traced, one died, and thirty-five were untraced. Of the ninety-two cases traced, eighty-three were successful anatomically, three cases partially successful, and six cases failures, or 6.5 per cent failures anatomically. Of the ninety-two patients traced, seventy-one cases were successful symptomatically, fourteen partially successful, and seven cases failures, or 7.6 per cent failures symptomatically. In the fourteen cases partially successful symptomatically there were complaints of one or two minor symptoms, but the prolapse was cured, or 15 per cent partial success symptomatically. The average failure of all forms of operations for prolapse of the uterus among different surgeons was from 10 to 12 per cent.

Diagnosis of Early Pregnancies.—Friedman and Lapham give the technic of a procedure by which the injection of urine into female rabbits may be utilized in the diagnosis of early human pregnancies. The results obtained with this procedure have proved to be correct in each of ninety-two cases for which they have satisfactorily complete records. To date they have been unable to discover a single instance wherein the laboratory observations were in error. The advantages of the procedure, from the standpoint of speed and simplicity, are indicated.

Determining Patency of Tubes.—Newell describes a new procedure for determining tubal patency subsequent to plastic correction of obstructions revealed through a preceding hysterosalpingogram. With the necessary plastic work done and intestines well packed away, special uterine elevating forceps, the tips of which are covered with rubber tubing to avoid any injury, are placed on the uterus from above downward, shutting off the cervix at about the level of the internal os. The forceps are curved and are held forward by the first assistant. With thumb and index fingers of the other hand, this assistant compresses the tube on the side opposite the one to be tested

for patency. The second assistant holds a small aluminum cup, 6 cm. wide and 3 cm. deep, having a handle for convenience, underneath the fimbriated end of the tube to be tested to catch carefully all the passing irrigating fluid. A small calibered needle attached to a 20 cc. syringe is pushed through the fundus into the uterine cavity, entrance into it being clearly perceived by a sudden cessation of resistance. Physiologic solution of sodium chloride is then slowly injected. The uterus is filled up and gradual distention of the tube to be tested is observed to progress from the uterine toward the fimbriated end, granted the tube is patent. Several syringefuls of fluid should be used for thorough irrigation since there is a possibility that this irrigating process might have some therapeutic effect.

American Journal of Tropical Medicine, Baltimore

11: 77-169 (March) 1931

Dengue Fever. J. S. Simmons, Washington, D. C.—p. 77.
Location of Dengue Virus in Body of Mosquitoes. R. L. Holt and J. H. Kintner, Manila, P. I.—p. 103.
Transmission of Yellow Fever: Further Experiments with Monkeys of New World. N. C. Davis, Bahia, Brazil.—p. 113.
Observations on Filtrability of Yellow Fever Virus. M. Frobisher, Jr., Bahia, Brazil.—p. 127.
*Use of Icterus Index and Bromsulphalein Test in Experimental Yellow Fever. J. A. Kerr, Bahia, Brazil.—p. 139.
Anopheles Mosquitoes and Avian Malaria. P. F. Russell, New York.—p. 145.
*Practical and Research Value of Mosquito Traps. C. H. Bath, Panama.—p. 147.
Attempts to Produce Bronchomoniliasis in Monkeys. H. A. Reimann and T. J. Kurotchkin, Peiping, China.—p. 151.

Icterus Index and Bromsulphalein Test in Yellow Fever.—Kerr states that in experimental yellow fever in *Macacus rhesus* the icterus index (Murphy) on the second and third day of fever is of much value in making a prognosis and of some value in making a diagnosis of the disease. An icterus index of 10 or more units on the second day of fever and of 15 or more units on the third and fourth days indicates a fatal prognosis for yellow fever. With values less than these a mortality of from about 12 to 23 per cent may be expected. In the bromsulphalein test the retention on the second day of fever of 10 per cent or more of the dye, and on the third day of 15 per cent or more, indicates a fatal infection. With values less than these, a mortality of about 35 per cent may be expected. The icterus index gives more accurate information than the bromsulphalein test and is much easier to determine.

Value of Mosquito Traps.—Bath is of the opinion that the mosquito trap is going to prove of great value in research work. Considering the great numbers of *Anopheles* that a few traps have destroyed in a short period of time, he is strongly convinced of its practical value as an important antimalarial measure. He believes that mosquito traps will eventually be built into houses as an essential part of the screening on dwellings in unsanitated areas.

Annals of Internal Medicine, Ann Arbor

4: 1105-1246 (March) 1931

*Nondevelopment of Eosinophilia in Pernicious Anemia Patients Treated with Desiccated Stomach. S. M. Goldhamer, Ann Arbor.—p. 1105.
Inhibitory Action of Infection and Fever on Hematopoietic Response in Case of Pernicious Anemia. K. C. Smithburn and L. G. Zerfas, Indianapolis.—p. 1108.
*Possible Significance of Thymus Gland in Syndrome of Hyperthyroidism. H. M. Margolis, Rochester, Minn.—p. 1112.
Effect of Irradiated Ergosterol on Thrombocytes and Coagulation of Blood. R. A. Phillips, D. F. Robertson, W. C. Corson and G. F. Irwin, St. Louis.—p. 1134.
*Failure of Irradiated Ergosterol to Relieve Parathyroid Tetany. T. Findley, Jr., Ann Arbor.—p. 1144.
*Recovery from Streptococcus Meningitis: Report of Case and an Analysis of Reported Cures. L. Rosenberg and H. W. Nottley, Brooklyn, N. Y.—p. 1154.
Prognosis in Tuberculosis with Especial Reference to Psychologic Aspects. E. W. Hayes, Monrovia, Calif.—p. 1183.
Digestive Diseases and Teeth. W. Lintz, Brooklyn.—p. 1188.
Tropical Sprue. E. A. Baumgartner, Clifton Springs, N. Y.—p. 1197.
Systematic Effect of Hydrochloric Acid in Patients with Achlorhydria. R. S. Hubbard, Clifton Springs, N. Y.—p. 1203.
Method for Adjusting Diet in Diabetes. C. Bruen, New York.—p. 1206.
Frequency and Clinical Manifestations of Intestinal Worms. P. F. Whitaker, Kinston, N. C.—p. 1212.
Plasmochin as Aid in Malaria Prevention. N. P. McPhail, Puerto Barrios, Guatemala.—p. 1217.

Anemia Patients Treated with Desiccated Stomach.—Goldhamer states that no constant eosinophilia develops after treatment of pernicious anemia patients with desiccated stomach tissue. In patients with allergic phenomena, fundamental changes associated with pernicious anemia do not prevent the development of the characteristic eosinophilia commonly seen in these conditions. Eosinophilia may be present in pernicious anemia in the absence of an evident cause, and this sign is not a differential feature in the diagnosis of uncomplicated pernicious anemia and infestation with intestinal parasites. There is no correlation between the changes in percentage, or absolute number, of eosinophil cells and the erythrocyte count, hemoglobin percentage, or numerical changes in the reticulocytes. The eosinophil stimulating substance of raw liver is not the active hematopoietic principle. The eosinophil count cannot be used as a standard or index of the potency of the active blood maturing principle in desiccated stomach or liver extract.

Possible Significance of Thymus in Hyperthyroidism—According to Margolis, the thymus frequently presents parenchymatous hyperplasia in hyperthyroidism. In general, the degree of hyperplasia is much more pronounced in cases of exophthalmic goiter than in cases of adenomatous goiter with hyperthyroidism. Cortical hyperplasia is most common with exophthalmic goiter, although medullary hyperplasia, alone or combined cortical and medullary hyperplasia, also occurs. In hyperfunctioning adenomatous goiter, medullary hyperplasia is most characteristic. An increase in the number and in the size of Hassall's corpuscles is nearly always seen in glands that show parenchymatous hyperplasia. True hyperplasia of the thymus may not be inferred from an increase in its gross weight alone. Microscopic studies are essential to confirm such a diagnosis. The occurrence of hyperplasia of the thymus may represent the expression of a constitution indicative of an inherent predisposition to the development of hyperthyroidism. The degree of such hyperplasia may be roughly proportional to the degree of such susceptibility to the development of the disease. It is impossible at present to evaluate the direct physiologic relationship that may exist between the thymus and the thyroid in the syndrome of hyperthyroidism.

Parathyroid Tetany.—Findley reports a case of parathyroid tetany associated with epilepsy and acute psychosis. The theories of the action of viosterol are briefly described and evidence is presented to show that one of them which supposes that vitamin D increases calcium absorption from the intestinal tract is not supported. The mechanism by which viosterol acts is not known. It seems highly improbable that it stimulates the parathyroid glands to increased secretory activity. Large doses of viosterol alone are insufficient treatment for parathyroid tetany, and even if it is combined with calcium therapy, the viosterol is an unimportant factor.

Recovery from Streptococcus Meningitis.—A case of *Streptococcus hemolyticus* meningitis with recovery is reported by Rosenberg and Nottley. Forty additional cases of meningitis due to the streptococcus have been collected from the literature and analyzed. The method of treatment on which recovery followed is indicated in each case.

Annals of Otol., Rhinol. and Laryngology, St. Louis

39: 663-925 (Sept.) 1930

Tempus Fugit. R. H. Skillern, Philadelphia.—p. 663.
Relationship Between Infections of Upper Respiratory Tract and Pediatric Conditions. L. W. Dean, St. Louis.—p. 670.
What Climate for Upper Respiratory Diseases? J. F. Barnhill, Miami Beach.—p. 679.
Adenoma of Bronchus. R. Kramer, New York.—p. 689.
Prevention of Nasal Deformities. W. W. Carter, New York.—p. 696.
Osteoplastic Resection of Both Alveolar Processes According to Kocher. A. M. Nikolsky, Tomsk, Siberia.—p. 701.
Nasal Allergy as Related to Hay-Fever and Hyperesthetic Rhinitis. S. M. Feinberg, Chicago.—p. 720.
Rational Operative Procedures for Chronic Hyperplastic Sinusitis in Asthma. J. B. Potts, A. D. Dunn and L. Dunn, Omaha.—p. 733.
Some Practical Points in Use of Electrosurgical Measures in Upper Respiratory Tract. M. B. Sponsler, Philadelphia.—p. 743.
Sphenoidal Sinus Syndrome. L. W. Oaks and H. G. Merrill, Provo, Utah.—p. 753.
Simple Mastoid Operation: Modified Technic. E. Roth, New York.—p. 760.
Study in Otosclerosis. C. Stewart Nash, Rochester, N. Y.—p. 769.

Comparative Study of Bacterial Flora of Clinically Normal Nasal Sinuses. C. S. Linton, St. Louis.—p. 779.
Some Diagnostic Considerations When Vertigo is a Symptom. L. J. Lawson, Evanston.—p. 792.
Study of Complications that May Follow Myringotomy. J. L. Myers, Kansas City.—p. 807.
Important Points in Tonsillectomy. A. M. Painter, Kansas City.—p. 815.

Archives of Internal Medicine, Chicago

47: 339-512 (March) 1931

*Angina Pectoris: Clinical and Electrocardiographic Phenomena of Attack and Their Comparison with Effects of Experimental Temporary Coronary Occlusion. F. C. Wood, New York, C. C. Wolferth and M. M. Livezey, Philadelphia.—p. 339.
Basal Metabolic Rate of Medical Students and Nurses in Training at Charleston, S. C. R. E. Remington and F. B. Culp, Charleston, S. C. —p. 366.
*Heart Rate in Progressive Muscular Dystrophy: Studies with Cardiotachometer. E. P. Boas and H. Lowenburg, New York.—p. 376.
*Gastric Acidity in Diabetes Mellitus: Its Clinical Significance Based on Study of One Hundred Cases. I. M. Rabinowitch, A. F. Fowler and B. A. Watson, Montreal, Canada.—p. 384.
*Metabolism of Galactose: I. Consideration Underlying Use of Galactose in Tests of Function of Liver. H. Shay, E. M. Schloss and M. A. Bell, Philadelphia.—p. 391.
*Cutaneous Reactions to Histamine: Reactions in Occlusive and Spastic Vascular Disease and in Chronic Infectious Arthritis. J. M. Caldwell, Jr., and J. G. Mayo, Rochester, Minn.—p. 403.
*Granulocytopenia and Agranulocytic Angina with Recovery: Eight Cases with Four Recoveries. H. N. Harkins, Chicago.—p. 408.
Test for Gastric Acidity: The "Combined Test." M. J. Matzner, I. Gray and H. Greenfield, Brooklyn.—p. 421.
*Treatment of Respiratory Arrest in Drinker Respirator: Clinical and Experimental Study. D. P. Murphy, C. K. Drinker and P. Drinker, Boston.—p. 424.
Anemia Associated with Chronic Dysentery: Clinical Considerations, with Special Reference to Cause and Treatment. C. S. Keefer, Boston; C. S. Yang and K. K. Huang, Peiping, China.—p. 436.
Acute Hematoporphyria: Two Cases. V. R. Mason and R. M. Farnham, Los Angeles.—p. 467.
Congenital Heart Disease: Measurements of Circulation. D. W. Richards, Jr., C. B. Riley and M. Hiscock, New York.—p. 484.
Hypertension in Cases of Congenital Polycystic Kidney. F. W. Schacht, Winnetka, Ill.—p. 500.

Angina Pectoris.—Thirty cases of angina pectoris were studied electrocardiographically by Wood and his associates before, during and after their attacks. Fifteen showed temporary ventricular complex changes during the pain, which probably cannot be explained by the exercise that produced the attacks or by the changes in blood pressure and pulse rate that accompanied them. The remaining fifteen showed no "specific" electrocardiographic changes during their attacks. The severity of the pain did not seem to be the main factor that determined the presence or absence of "specific" electrocardiographic change during an attack. The relief of anginal pain by nitrites does not always seem to be dependent on the drop of blood pressure which this group of drugs produces. In a series of dogs and cats, temporary interference with a part of the coronary circulation produced temporary and rapidly reversible changes in the electrocardiogram somewhat analogous to those seen during attacks of angina pectoris. The factors that seemed to be important in the production of these changes were: (*a*) the vessel that was occluded; (*b*) the size of the area of the myocardium the blood supply of which was interrupted; (*c*) the state of the heart before the vascular occlusion; (*d*) the duration of the occlusion, and (*e*) possibly the simultaneous obstruction of accompanying veins. Experimental temporary coronary occlusion frequently produced no electrocardiographic change. Therefore the absence of "specific" electrocardiographic change in fifteen patients during attacks of angina pectoris cannot be used as evidence that temporary myocardial ischemia did not occur. In experimental coronary occlusion, cardiac arrhythmia, which could be attributed to the circulatory disturbance in itself, was not a frequent early phenomenon. When it did occur, it seemed to be attributable to mechanical stimulation of the heart muscle by the mechanism producing the occlusion. The evidence presented is in accord with the hypothesis that the majority of attacks of angina pectoris are associated with a localized circulatory disturbance in the heart. It does not rule out the possibility that other mechanisms may produce paroxysms of precordial or substernal pain.

Heart Rate in Progressive Muscular Dystrophy.—In the examination of seven patients with progressive muscular dystrophy by means of a cardiotachometer, Boas and Lowenburg noted that all exhibited tachycardia, which persisted during sleep. They believe that the rapid heart rate is due to the characteristic myocardial lesions of this disease, as well as to the effect of the loss of the pumping action of the striated muscles on the venous return flow. Further evidence of myocardial injury was presented by two patients who had electrocardiograms characteristic of disease of the heart muscle and by four patients in whom the first heart sound was feeble.

Gastric Acidity in Diabetes Mellitus.—Rabinowitch and collaborators state that among nondiabetic persons the Ewald test shows an incidence of achlorhydria of less than 20 per cent. However, allowing an incidence of 20 per cent, the latter value is only about half of that found in a group of 100 diabetic persons investigated. The clinical importance of this observation is that when diabetic persons show signs and symptoms that suggest conditions for the diagnosis of which gastric acidity is considered, the fact that diabetes, per se, may be responsible for low acidity must be considered.

Metabolism of Galactose.—The advantages of galactose for the testing of the function of the liver are thus enumerated by Shay and his associates: It is obtainable in pure form; it is readily absorbed from the digestive tract; it is converted into glycogen by the liver with some difficulty as compared to other sugars (dextrose and fructose); it is practically not utilizable by any other tissues than the liver, and after it reaches the general circulation it is excreted in the urine regardless of either the state of the renal excretory mechanism or the activity of the endocrine glands.

Cutaneous Reactions to Histamine.—According to Caldwell and Mayo, the cutaneous reaction to histamine, especially the time that elapses between administration of the drug and the formation of wheals, is of value in determining whether or not the blood supply to the skin of the extremities is reduced. The reaction is delayed and reduced in occlusive vascular disease. The reaction is delayed and reduced in the spastic phase of Raynaud's disease and in scleroderma. Improvement is noted in the reaction coincident with an increased supply of blood after resection of the sympathetic ganglions and trunks in Raynaud's disease and scleroderma. The reaction is occasionally reduced in chronic infectious arthritis, and the degree of the involvement of the joints or the temperature of the extremity appears to have no effect on the time of formation of the wheals. When the formation of wheals preoperatively resembled that seen in normal persons, no change was noted in the time or size of formation of the wheals following resection of the sympathetic ganglions and trunks in chronic infectious arthritis. In the instances in which formation of the wheal was delayed preoperatively there was improvement following resection of the sympathetic ganglions and trunks. The flare usually is absent or reduced by the seventh day after resection of the sympathetic ganglions and trunks, but the usual flare may be persistent and may be present at least to the one hundred and fiftieth day.

Granulocytopenia and Agranulocytic Angina with Recovery.—Eight cases of granulocytopenia with four recoveries are presented by Harkins. In four of the eight cases the condition was possibly agranulocytic angina. Three of the patients recovered. A mild granulocytopenia sometimes precedes the onset of agranulocytic angina. In four previously reported cases of agranulocytic angina, the patients died of a second attack. One element in agranulocytic angina may be a constitutional defect of the bone marrow. Agranulocytic angina may be confused with aplastic anemia. Liver extract was used in two of the cases in which recovery occurred. At least 150 cases of agranulocytic angina with twenty-seven recoveries have been reported to date. The approximate reported mortality rate is 82 per cent.

Treatment of Respiratory Arrest in Drinker Respirator.—Murphy and the Drinkers give clinical and postmortem data for two adults and six infants treated for respiratory failure in the Drinker respirator. These data show that for long periods the respirator should be used with as low negative pressures as possible, not more than 25 cm. of water for the adult and 10 cm. of water for the infant. Patients with the combination of an exudative process in the lungs and respiratory paralysis make little progress when placed in the respi-

rator. At necropsy they show hemorrhagic lesions which, in the authors' opinion, may have arisen following bronchiolar plugging and atelectasis. Such patients should always be treated in the head-down position and changed from back to side if it is possible to do so. Infants should not be subjected to negative pressures greater than 10 cm. of water for long periods, and they should invariably be treated with the head down at an angle of from 10 to 15 degrees.

Archives of Ophthalmology, Chicago

5: 327-516 (March) 1931

Operative Treatment of Glaucoma. E. de Grósz, Budapest, Hungary. —p. 327.
*Chronic Cisternal Arachnoiditis Producing Symptoms of Involvement of Optic Nerves and Chiasm: Pathology and Results of Operative Treatment in Four Cases. G. J. Heuer and D. T. Vail, Jr., Cincinnati. —p. 334.
Two Per Cent Epinephrine Solutions as Substitutes for Laevoglaucosan. J. Green. St. Louis.—p. 350.
Chemical Studies of Lipids of Normal Animal Lenses, Cataractous Human Lenses and Blood of Patients with Cataract. P. W. Salit, Iowa City.—p. 354.
Weakness of Accommodation. N. Blatt, Targu-Mures, Romania.—p. 362.
*Disturbances of Sensibility of Cornea and Conjunctiva in Xerosis and Keratomalacia of Adults. I. John, Peiping, China.—p. 374.
Microscopic Observations in Case of Retinitis Pigmentosa. F. H. Verhoeff. Boston.—p. 392.
Hereditary Optic Atrophy (Leber's Disease): Clinicosurgical Study of Case. H. S. Kuhn, Hammond, Ind.—p. 408.
*Tumors of Quadrigeminate Plate: Clinico-Anatomic Study of Seven Cases. J. H. Globus, New York.—p. 418.
Multiple Myxoma of Orbit. S. R. Gifford, Chicago.—p. 445.
Osseous Tumors of Orbit. Z. H. Ellis and H. S. McKeown, New York. —p. 44[illegible].

Cisternal Arachnoiditis with Symptoms of Involvement of Optic Nerves.—The operative treatment used by Heuer and Vail in four cases of chronic cisternal arachnoiditis producing symptoms of involvement of the optic nerves and chiasm consisted in the evacuation of the distended cisterna chiasmatis, followed by the excision of its presenting wall so far as possible, and the freeing of the optic chiasm and nerves from the enveloping adhesions, usually by blunt, but occasionally by sharp, dissection. A search was made in each case for a tumor or other pathologic condition about the optic chiasm, but nothing abnormal was found, aside from the chronic arachnoiditis. In each case the authors were prepared to find this condition about the optic chiasm, for it was obvious over the hemisphere as soon as they had reflected the dural flaps. The operation is far simpler than that of the removal of a tumor, for there is not, and should not be, any hemorrhage. The results of the operative treatment in these four cases have been satisfactory. There were no postoperative complications and no immediate mortality. Vision improved before the patients left the hospital and continued to improve, so that at periods of three years, one year, eleven months and one and a half months afterward all four patients were able to read ordinary print and do their usual work.

Disturbances of Sensibility of Cornea and Conjunctiva in Xerosis.—Examinations of the sensibility of the cornea and conjunctiva have been made by John on twenty patients with disturbances of the eye caused by lack of vitamin A. In the early stage of the disease with Bitot's spots present but an otherwise normal conjunctiva and cornea, the sensibility of the cornea and conjunctiva has been practically normal. In all other more advanced stages of this disease with changes of the cornea already visible in the forms of prexerosis and xerosis of the cornea and in advanced xerosis of the conjunctiva, with wrinkling and pigmentation, the sensibility of the cornea has been found diminished to a high degree, sometimes as far as a hundred times below normal, and that of the conjunctiva has also been found diminished but to a relatively low degree, four times below normal at the most. The sensibility of the corneal center is especially diminished in the majority of the cases, being relatively lower than that of the corneal periphery. In some cases the sensibility of the corneal center is even actually less than that of the corneal periphery. The disturbance of corneal and conjunctival sensibility has been found to be present months later, although in a lower degree, while the xerotic disturbances after treatment with vitamin A in the form of cod liver oil have disappeared long since. The involvement of the eye due to lack of vitamin A must be regarded most probably as the result of a centrally situated nutritive and sensible disturbance in which the point of attack is probably the ganglion gasseri or the ganglion ciliare. The nutritive or sympathetic center of the fibers is more sensitive to the disturbances causing these diseases than the sensible fibers, because the trophic changes in the cornea and conjunctiva start before the sensible changes and disappear more quickly than the sensible changes after the appropriate vitamin treatment has been applied. Hemeralopia, which is one of the characteristic symptoms in the beginning stage of vitamin A deficiency, may be the consequence also of a centrally situated disturbance or of changes in the trunk of the optic nerve.

Tumors of Quadrigeminate Plate.—Globus states that tumors of the quadrigeminate plate may be easily recognized by a series of clinical signs and symptoms which assume the character of a syndrome. The quadrigeminate plate syndrome consists of three distinct groups of signs: (*a*) General signs, provoked by increased intracranial tension; these are likely to be marked because of the critical location of the tumor, and they include papilledema, headache, vomiting and dulling of the intellect. (*b*) Local signs, caused by direct anatomic disturbances in the quadrigeminate plate and adjacent structures; these provoke disruption in the function of the extrinsic and intrinsic ocular mechanisms, ophthalmoplegias, Argyll Robertson pupil, paralysis of upward gaze, skew deviation, diplopia, the appearance of pyramidal tract and cerebellar signs and the occurrence of other manifestations of disease of the midbrain (tremor, postures, rigidities). (*c*) Indirect signs, resulting from the effects of the tumor on distal areas of the brain; these are expressed in vegetative dysfunctions (polydipsia, polyuria, anomalies of skeletal growth and maldevelopment of secondary sex characters). Clinical methods of examination (ophthalmologic and neurologic) yield sufficient information for the localization of these tumors, and mechanical aids in diagnosis are seldom necessary. Tumors of the quadrigeminate plate, in the great majority of instances, present histologic features that place them among the neoplasms commonly called pinealoma.

Archives of Otolaryngology, Chicago

13: 315-488 (March) 1931

*Bronchoscopic Observations on Obstructive Pulmonary Atelectasis. G. Tucker, Philadelphia.—p. 315.
*Artificial Sunlight in Treatment of Laryngeal Tuberculosis: Modified Carbon Arclight. J. W. Miller, New York.—p. 326.
*Gradenigo's Syndrome, with Consideration of "Petrositis." H. J. Profant, Santa Barbara, Calif.—p. 347.
Local Anesthesia for Radical Maxillary Operation: Improved Technic of Administration. M. S. Ersner, J. J. Pressman and W. Ersner, Philadelphia.—p. 379.
Unlocking of Petrous Pyramid for Localized Bulbar (Pontile) Meningitis Secondary to Suppuration of Petrous Apex: Four Cases with Recovery in Three. W. P. Eaglelton, Newark, N. J.—p. 386.
Race and Sex Variations in Auditory Acuity. C. C. Bunch, St. Louis, and T. S. Raiford, Baltimore.—p. 423.
Paralysis of Vocal Cords. H. F. Davies, Washington, D. C.—p. 435.

Bronchoscopic Observations on Pulmonary Atelectasis.—According to Tucker, pulmonary disease may cause bronchial obstruction comparable in mechanism, physical signs and roentgen manifestations to the obstruction produced by an aspirated foreign body. When obstructive pulmonary atelectasis occurs, it means that complete occclusion of the bronchus tributary to the atelectatic area has occurred. Obstructive pulmonary atelectasis is an indication for diagnostic bronchoscopy and in many cases an indication for bronchoscopic intervention for treatment, as well.

Artificial Sunlight in Treatment of Laryngeal Tuberculosis.—Only two of seventy-four patients with laryngeal tuberculosis treated by Miller did not respond to concentrated artificial sunlight. Fifty-nine of the other seventy-two patients showed complete healing of the laryngeal lesions with no subjective symptoms referable to the larynx. While the subjective laryngeal symptoms of the other thirteen patients improved, there was either partial or no healing of the tuberculous larynx. Successful healing could have been produced in even a greater number had it been possible to administer irradiation to these thirteen patients in a sanatorium, where this mode of treatment should be carried out.

Gradenigo's Syndrome, with Consideration of "Petrositis."—Profant states that pneumatic cells are present in the petrous bone more frequently than is generally known. Two routes of cells extending to the petrous tip are described: the antrum-epitympanic and the hypotympanic. Because anatomically the cells can always be traced to one of these two routes, embryologically the cells develop in this manner, and clinicaly the infection may extend from the hypotympanic space as well as from the antrum-epitympanic space. One must concede the possibility of an infection entering either route near the orifice of the eustachian tube before, or even without, entering the tympanum. The medical term petrositis is suggested because it centers one's attention on this possible involvement. A petrositis may be present with no obvious clinical signs. One sign suggestive of petrositis is the presence, and especially the recurrence, of a profuse aural discharge in the absence of a definite involvement of the mastoid, or during postoperative care after mastoidectomy. The first definite sign to appear is pain in the areas supplied by the trigeminal nerve, most commonly in the temporoparietal region. The complications of a petrositis depend on the type and degree of the pneumatization, the virulence of the infection and the resistance of the patient. In the majority of cases, Gradenigo's syndrome is a complication of petrositis. In the other cases it is a complication of some other complication of the middle ear or involvement of the mastoid, such as a sinus thrombosis, extradural abscess, or abscess of the brain. One must bear in mind that some patients recover after a myringotomy and the majority after a simple mastoidectomy with special attention to the cells about the antrum and zygoma. The radical procedure of exploring the petrous tip is rarely indicated.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

12: 133-189 (March) 1931

Radiotherm: Construction and Principles of Operation. K. C. DeWalt, Schenectady, N. Y.—p. 133.

Effect of Heat Produced by Ultra-High Frequency Oscillator on Experimental Syphilis in Rabbits. C. M. Carpenter, Schenectady, N. Y.—p. 137.

Heating Effect of Short Radio Waves. J. C. McLennan, Toronto, Canada.—p. 143.

Influence of Ultraviolet Light on Glucose Tolerance of Rabbits. R. W. Root, Durham, N. C.—p. 153.

Cancer Control from Standpoint of Physiotherapist. A. H. Estabrook, New York.—p. 156.

Treatment of Laryngeal Tuberculosis at Vejlefjord Sanatorium, Denmark. O. Strandberg and J. Gravesen, Jutland.—p. 161.

Ultraviolet Glasses. A. R. Wood, St. Helens, Lancashire, England.—p. 163.

Archives of Surgery, Chicago

22: 353-526 (March) 1931

*Recurrence of Varicose Veins Following Injection: Study of Pathologic Nature of Recurrence and Critical Survey of Injection Method. N. J. Howard, C. R. Jackson and E. J. Mahon, San Francisco.—p. 353.

Formation of Bone Under Influence of Epithelium of Urinary Tract. C. B. Higgins, Chicago.—p. 377.

*Association of Raynaud's Disease with Cerebral Symptoms: Case with Migraine, Psychoneurotic Symptoms, Transient Hemiplegia and Death. L. Carp, New York.—p. 409.

*Tuberculosis of Stomach: Analysis of Cases Recently Reviewed. R. W. Good, Cincinnati.—p. 415.

*Rôle of Pyloric Sphincter in Behavior of Gastric Acidity. R. Elman and A. P. Rowlette, St. Louis.—p. 426.

*Pyloric Block: Reference to Musculature, Myenteric Plexus and Lymphatic Vessels. B. T. Horton, Rochester, Minn.—p. 438.

Attitudes Associated with Lesions About Hip Joint. V. L. Hart, Ann Arbor, Mich.—p. 463.

Spondylitis Deformans. S. Kleinberg, New York.—p. 485.

*Effect of Atelectasis on Pulmonary Blood Volume. J. Fine and C. K. Drinker, Boston.—p. 495.

Review of Urologic Surgery. A. J. Scholl, Los Angeles; E. S. Judd, Rochester, Minn.; L. D. Keyser, Roanoke, Va.; G. S. Foulds, Toronto, Canada; J. Verbrugge, Antwerp, Belgium, and A. A. Kutzmann, Los Angeles.—p. 503.

Recurrence of Varicose Veins.—In sixty-six patients treated for varicose veins by the injection of 20 per cent solution of sodium chloride, Howard and collaborators have been able to reexamine forty-nine a year or more after treatment. On reexamination, forty-eight of the forty-nine patients showed recurrence of their previously thrombosed veins. Four additional patients were known to have had early recurrence but could not be located after a year. The recurrence rate is 79 per cent of all patients treated, or 98 per cent of all those followed a year or more. In contrast, forty-nine had partial or complete relief from symptoms attributed to the varicosities, twenty-eight of these patients being completely relieved from all symptoms. Recurrence of veins thrombosed by injection was found to take place by recanalization, a natural pathologic response to thrombosis. The interruption of the continuity of the vein by excision, especially in the presence of incompetent saphenous or perforating valves, is held to be vital in securing more permanent results. Indications for combining excision with injection are suggested in an effort to afford permanent freedom from recurrence in persons who cannot afford, or reject, the complete excision of varicose veins.

Raynaud's Disease and Cerebral Symptoms.—Carp reports the case of a patient who had Raynaud's disease, with psychic symptoms and several migrainous attacks on the right side over a period of several years. A sudden onset of hemiplegia, contralateral to the extremity involved and to the side on which he had temporal headache, accompanied by intermittent pulsations of the radial and brachial arteries which could be felt on the affected extremity, together with the subsequent disappearance of the paralysis, point to one etiologic factor—transient peripheral and cerebral angiospasm. A review of the literature shows that the cerebral symptoms of Raynaud's disease are more frequent than usually thought and that the manifestations may be central, vascular or mental. These may precede the obvious clinical syndrome by varying periods.

Tuberculosis of Stomach.—Good states that tuberculosis of the stomach is a rare disease of adults. The principal elements accompanying the chronic dyspepsia are pain after meals, loss of weight and strength and vomiting. Half of the cases are associated with tuberculosis elsewhere in the body. The disease is mistaken for gastric ulcer or carcinoma. Symptoms of pyloric stenosis are common. The treatment is surgical and, by choice, consists of radical resection of the lesion-bearing portion of the stomach. The pyloric end of the stomach is the site of predilection. In most instances the gross appearance of the lesion, except for the presence of an ulcer, a tumor, scarring or combinations of the three lesions, does not identify itself as tuberculous unless visible tubercles are present. The real nature of the lesion is revealed only by microscopic examination. Tubercle bacilli are difficult to demonstrate in the lesion. The presence of an organic gastric lesion can be relatively easily established. If surgical treatment is prescribed for all chronic organic gastric lesions, the rare disease of tuberculosis of the stomach does not create a new problem. In most instances, evidence of tuberculosis elsewhere in the body is not a contraindication to exploration of a gastric lesion. Tuberculosis of the stomach is diagnosed by histopathologic methods. There is no need clinically to differentiate tuberculosis of the stomach from the commoner chronic organic gastric lesion in order to institute the proper treatment.

Pyloric Sphincter in Behavior of Gastric Acidity.—Elman and Rowlette describe experiments in which successful division of the pyloric sphincter was achieved and which as a consequence show a persistent lowering of gastric acidity as measured by an augmented neutralization of an "acid test meal." A moderate increase in the emptying time was also observed. Inferences from this and other evidence seem to justify the conception of "the pyloric control of gastric acidity" rather than that of unqualified acid control of the pylorus.

Pyloric Block.—An investigation was undertaken by Horton to determine the lymphatic drainage of the stomach and the relationship between the lymphatics of the stomach and those of the duodenum. India ink and india ink and gelatin mixtures were injected into thirty-five specimens. In none of the specimens was there any demonstrable continuity between the submucous lymphatics of the stomach and those of the duodenum. An indirect communication between the submucous lymphatics of the stomach and those of the duodenum has been demonstrated. In two specimens there was a direct communication between the pylorus and a lymph node at the hilus of the liver. The drainage of the stomach is represented by four distinct areas, the largest of which represents the area drained by lymph nodes along the lesser curvature; the second most important is that on the greater curvature, which drains into the inferior gastric and subpyloric groups of lymph nodes. The third drains toward the splenic group of nodes, and the

fourth drains the distal portion of the pars pylorica to the nodes above the pancreas.

Effect of Atelectasis on Blood Volume.—A reliable chemical method for the quantification of the relative blood volumes of the two lungs in the rabbit is outlined by Fine and Drinker. This method shows that the rabbit's right lung has a much greater blood volume than the left lung. Absorption atelectasis at once reduces the total blood volume of the affected lung to a considerable degree. Compression atelectasis also at once markedly reduces the total blood volume of the affected lung, in a number of instances to an extent far greater than is obtained in absorption atelectasis.

California and Western Medicine, San Francisco

34: 73-144 (Feb.) 1931

Minimum Requirements for Roentgenography. H. J. Ullmann, Santa Barbara.—p. 73.
Difficult Fractures. W. C. Adams, Oakland.—p. 77.
Blood Pressure and Goiter. J. M. Askey and C. G. Toland, Los Angeles.—p. 80.
Retrobulbar Neuritis and Multiple Sclerosis. C. B. Walker, Los Angeles.—p. 84.
Low Grade Ethmoiditis as Cause of Certain Eye Conditions. W. B. Smith, San Francisco.—p. 88.
Raynaud's Disease: Recent Experimental Studies. W. J. Kerr, San Francisco.—p. 91.
Diversion of Urinary Stream by Ureteral Transplantation: Its Indications and Ultimate Results. C. P. Mathé, San Francisco.—p. 97.
Spastic Contraction Ring: A Cause of Postoperative Intestinal Obstruction. W. S. Hoyt, Monterey.—p. 105.

Delaware State Medical Journal, Wilmington

3: 39-66 (March) 1931

Prevention Transmission of Syphilis by Control of Infectiousness. J. H. Stokes, Philadelphia.—p. 39.

Johns Hopkins Hospital Bulletin, Baltimore

48: 115-191 (March) 1931

Search for Trophic Influence of Sympathetic Nervous System on Adult Mammalian Skeletal Muscle Fiber. S. S. Tower, Baltimore.—p. 115.
*Importance of Diet in Preventing Acute Yellow Atrophy During Arsphenamine Treatment. E. B. Craven, Jr., Baltimore.—p. 131.
Acid-Fast Bacteria: Relation to Disease and Need for More Knowledge. W. C. White, Washington, D. C.—p. 143.
Boundaries of Sino-Auricular Node and Atrioventricular Node in Human Heart. H. B. Taussig, Baltimore.—p. 162.

Diet During Arsphenamine Treatment.—In experiments on dogs, Craven demonstrated that high fat and high protein diets provide the maximum protection against the liver injury caused by arsphenamine. Of these two diets, the former is more efficacious. High carbohydrate diets afford maximum susceptibility to the liver injury caused by arsphenamine. Starvation is important as a predisposing factor toward the liver injury caused by arsphenamine. Cystine added to the diet or given intravenously does not increase the protective action of carbohydrate diets.

Journal of Comparative Neurology, Philadelphia

52: 1-222 (Feb. 15) 1931

Forebrain of Opossum, Didelphis Virginiana: Histology. Y. T. Loo, Chicago.—p. 1.
Observations on Embryonic and Fetal Movements of Cat. W. F. Windle and A. M. Griffin, Chicago.—p. 149.
Study of Neurofibril Structure of Nerve Cell. O. W. Tiegs.—p. 189.

Journal of Immunology, Baltimore

20: 187-258 (March) 1931

Diphtheria Antibodies in Urine of Child After Intramuscular Injection of Antitoxic Horse Globulin. J. M. Neill, E. L. Gaspari and J. Y. Sugg, Nashville, Tenn.—p. 187.
Chemical Composition of Active Principle of Tuberculin: Anaphylactogenic Action of Protein from Filtrates of Acid-Fast Bacteria. J. H. Lewis and F. B. Seibert, Chicago.—p. 201.
Comparative Study of Anaphylactic and Tuberculin Types of Hypersensitiveness: General Reactions Similar to Tuberculin Shock in Tuberculous Guinea-Pigs Sensitized with Various Antigens. L. Dienes, Asheville, N. C.—p. 221.
Producton of Group Specific Human Hemagglutinins with Note on Separation of Iso-Agglutinogens from Red Corpuscles. I. Davidsohn, Philadelphia.—p. 239.
Diphtheria Toxoid. Preparation and Dosage. O. R. Povitzky, New York.—p. 247.
Transmission to Third Generation of Antitoxin Derived by Active Immunization of First Generation. J. Y. Sugg, L. V. Richardson and J. M. Neill, Nashville, Tenn.—p. 255.

Kentucky Medical Journal, Bowling Green

29: 65-118 (Feb.) 1931

Gynecologic Treatments by Electrotherapeutic Means. A. D. Willmoth, Louisville.—p. 68.
Operation for Vesicovaginal Fistula. J. R. Wathen, Louisville.—p. 73.
Treatment of Rheumatic Fever in Children. R. L. Biltz, Newport.—p. 76.
Present Day Conception of Pulmonary Tuberculosis in Infancy and Childhood. O. O. Miller, Louisville.—p. 81.
Fractures of Skull. G. Aud, Louisville.—p. 87.
Problems of Renal Function. M. Flexner, Louisville.—p. 93.
Prevention Better than Attempt to Repair. H. H. Roberts, Georgetown.—p. 98.
Résumé of Goiter Survey in Eighth Grades and Louisville City High Schools. W. O. Johnson, Louisville.—p. 102.

Maine Medical Journal, Portland

22: 37-58 (March) 1931

A Few Theories, Facts and Fallacies Concerning Pneumonia Gathered from My Own Experience and Current Medical Literature. F. H. Badger, Waterville.—p. 38.
Surgical Treatment of Pulmonary Tuberculosis. T. S. Moise, Bangor.—p. 44.
Practical Observations on Spinal Anesthesia. W. E. Tobie, Portland.—p. 50.

Missouri State Medical Assn. Journal, St. Louis

28: 99-146 (March) 1931

Sympathetic Ganglionectomy for Arthritis Deformans. W. T. Coughlin, St. Louis.—p. 99.
Spinal Anesthesia in Bladder Surgery. R. Vinyard, Springfield.—p. 102.
Urinary Bladder Obstruction Not Due to Prostatic Hypertrophy. G. Carroll, St. Louis.—p. 103.
Trachoma. A. J. Baer, Kansas City.—p. 105.
Bronchosinusitis. E. R. Deweese, Kansas City.—p. 108.
Food Sensitization and Treatment. O. H. Brown, Phoenix, Ariz.—p. 110.
Hereditary Cataract: Unusual Family History. E. T. Hornback, Hannibal.—p. 113.
Phytobezoar (Diospyri Virginianae): Four Cases. P. F. Cole, Springfield.—p. 116.
Problems in Diagnosis and Treatment of the Aged. J. D. Guyot, Higginsville.—p. 120.
Efficacy of Pyridium in Gonococcal Urethritis. R. Deakin, St. Louis.—p. 123.

New England Journal of Medicine, Boston

204: 413-474 (Feb. 26) 1931

Minimum Standards for Diagnosis, Treatment and Control of Gonorrhea in Male and Female. N. A. Nelson, Boston.—p. 424.
Arguments Supporting House Bill 265 Submitted to Massachusetts Legislature of 1931. S. B. Woodward, Worcester.—p. 431.
Social Maladjustments with Psychiatric Determinants. E. A. Sullivan, Cambridge.—p. 435.
Treatment of Spasmodic Croup Based on Clinical Findings in Colon. L. P. Crawford, Wollaston.—p. 437.
Dover's Powder and Robinson Crusoe. J. H. Boyes, Boston.—p. 440.
Recent Progress in Physiology. P. G. Stiles, Boston.—p. 444.

204: 475-528 (March 5) 1931

Vaccinial Encephalitis: Three Cases: Two with Postmortem Examination. H. R. Viets and S. Warren, Boston.—p. 475.
Mental Hygiene Problems of Children with Sensory Motor Defects. B. Crothers, Boston.—p. 481.
Present Status of Gold Therapy. H. P. Towle, Boston.—p. 487.
Lacerations of Perineum in Female Children: Three Cases. L. E. Phaneuf, Boston.—p. 489.
Fracture Treatment: Convalescence and Apparatus. F. J. Cotton, Boston.—p. 491.
Diagnosis and Treatment of Cardiac Arrhythmias. C. H. Beecher, Burlington, Vt.—p. 499.
Sudden Blindness at Fifty. H. F. Day, Boston.—p. 503.

204: 637-692 (March 26) 1931

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Kümmell's Disease. F. W. O'Brien, Boston.—p. 641.
Myocardosis—Failing Heart of Middle Life: Early Clinical Manifestations. A. S. Hyman, New York, and A. E. Parsonnet, Newark, N. J.—p. 648.
Glaucoma. W. D. Rowland, Boston.—p. 653.
Case of Teratoma of Breast. W. P. Coues, Brookline.—p. 656.
History of Medicine at Mouth of Merrimack River, Newburyport, in Relation to the Essex North District Medical Society. F. W. Snow, Newburyport.—p. 658.
History of Practice of Medicine in Haverhill and Vicinity Since 1836 Based on Recollections of Fifty Years and Records of One Hundred Years. F. W. Anthony, Haverhill.—p. 661.
Story of Essex North District Medical Society in Lawrence, Methuen, Andover and North Andover from 1841 to 1930. J. F. Burnham, Lawrence.—p. 665.
Progress in Pediatrics. J. L. Morse, Boston.—p. 668.

New York State Journal of Medicine, New York

31: 325-390 (March 15) 1931

Economic Contribution of Physicians to Community. C. G. Heyd, New York.—p. 325.
The Trend in Care of the Sick. J. F. O'Hern, Rochester.—p. 330.
Results of Liver Treatment of Pernicious Anemia. J. E. Connery, New York.—p. 334.
Roentgen-Ray Tuberculosis in Apparently Healthy Individuals. A. C. Reid, New York.—p. 337.
Congenital Capillary Angioma of Parotid Gland. M. J. Fein, Brooklyn. —p. 340.
Pulmonary Hemorrhage with Unusual Sequelae. E. E. Mack, Syracuse. —p. 341.
An Appraisal of Present-Day Methods of Raising Children. F. Van Der Bogert, Schenectady.—p. 343.
A Comparison of Roentgen-Ray with Other Forms of Radiant Therapy in Treating Skin Diseases. H. H. Bauckus, Buffalo.—p. 345.
Bacteriophage: Its Application in Dermatologic Practice. A. C. Cipollaro, New York.—p. 349.
Important Aspects of Measles. P. M. Stimson, New York.—p. 352.

Ohio State Medical Journal, Columbus

27: 185-264 (March 1) 1931

Surgery in Certain Types of Arthritis. B. G. Chollett and A. L. Bershon, Toledo.—p. 205.
Differentiation Between Circulatory Diseases and Abdominal Conditions. W. W. Beauchamp, Lima.—p. 209.
Advantages of External Scleral Scalpel Incision in Iridectomy of Acute Glaucoma. C. King, Cincinnati.—p. 213.
Progressive Facial Hemiatrophy. F. C. Wagenhals, Columbus.—p. 217.
Ischial-Ramic Diameter and Uterine Cervix. J. Gardiner, Toledo.—p. 219.
Present Status of Treatment of Pneumonia. R. H. McDonald, Cleveland. —p. 223.

Oklahoma State Medical Assn. Journal, Muskogee

24: 65-100 (March) 1931

Pulmonary Abscess: Early Diagnosis and Prompt Treatment. L. J. Moorman, Oklahoma City.—p. 65.
Is Gastro-Enteroptosis a Surgical Condition? F. A. Hudson, Enid.—p. 70.
Newer Methods in Plastic Surgery. C. von Wedel, Oklahoma City.— p. 75.
Urticaria: Diagnosis and Treatment of One Hundred and Eighty-Eight Cases. R. M. Balyeat, Oklahoma City.—p. 76.
A Surgical Diabetic. L. A. Riely, Oklahoma City.—p. 84.
Hygiene of Gestation. J. H. Robinson, Oklahoma City.—p. 86.
Nothing New About Something Old. H. M. McClure, Chickasha.—p. 88.
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Philippine Islands M. Assn. Journal, Manila

10: 499-538 (Dec.) 1930

Use of One-Half Per Cent Novocaine and Normal Saline Solution Perineurally in Neuralgia. R. L. Teopaco, Baguio.—p. 504.
Disease Concept in Psychiatry. L. Pardo, Manila.—p. 511.
Is Teething in Children a Real Clinical Entity or Mere Incident? E. P. Romulo, Bontoc.—p. 514.
Is Appendectomy Easy? F. T. Diy and M. Santos, Butuan, Agusan. —p. 516.
Case of Complete Absence of Vagina. S. Y. Orosa, J. Varela and S. Ochoa, Bacolod.—p. 521.
Practical Solution of Pusale Problem in Philippine Rural Communities. M. M. Aycardo, Manila.—p. 522.
Comparative Studies on Results of Different Medical Treatment of Malaria. J. Z. Rosales, Cotabato.—p. 527.
Use of Buntal Cutaneous Suture in Surgery. L. De Jesus, Pampanga. —p. 530.

Public Health Reports, Washington, D. C.

46: 515-571 (March 6) 1931

Outbreak of Malaria in Railroad Camp, Rawson Switch, Calif. J. C. Geiger and J. P. Gray.—p. 516.
Action of Sulphydryl, Iron and Cyanide Compounds on Oxygen Consumption of Living Cells. S. M. Rosenthal and C. Voegtlin.—p. 521.

46: 573-627 (March 13) 1931

Limited Rat Flea Survey of Savannah, Ga. C. Fox.—p. 574.
Public Health Survey of Oklahoma. A. J. McLaughlin.—p. 575.

46: 629-691 (March 20) 1931

Fundamentals of Public Health Law. J. E. Bauman.—p. 631.
Phosphorus, Total Calcium, and Diffusible Calcium Content of Blood Serum of Lepers and Their Relation to Bone Changes. J. C. Wooley. —p. 641.

Tennessee State Medical Assn. Journal, Nashville

24: 81-120 (March) 1931

Uterine Bleeding of Middle Life. E. Novak, Baltimore.—p. 81.
Rôle of Otolaryngologist in Treatment of Allergy. F. D. Linn, Memphis.—p. 87.
Is It Twilight or Dawn? G. V. Williams, Chattanooga.—p. 92.
Work Being Done by Central State Hospital for Courts of Tennessee. H. B. Brackin, Nashville.—p. 100.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 481-524 (March 21) 1931

Treatment of Mitral Disease in Children. T. F. Cotton.—p. 481.
Prostate in General Practice. K. Walker.—p. 482.
*Treatment of Paranasal Suppuration Persisting After Operation. P. G. Goldsmith.—p. 484.
*Thirty Years of Stomach Surgery. J. Phillips.—p. 489.
Muscle Extract Treatment of Some Grave Vascular Diseases. M. S. Schwartzman.—p. 492.
Case of Lipoid Nephrosis. E. A. Lumley.—p. 494.

Paranasal Suppuration Persisting After Operation.—Goldsmith states that the type of patient is important in determining the most satisfactory treatment in an individual instance. With the neurotic, uneasy if he has any nasal secretion he can dislodge, it may simply be necessary to minimize his fears, to encourage him not to worry, and to assure him that there is nothing likely to cause any trouble. Regulation of such a patient's manner of living, habits, diet and exercise is of more importance than local medication. Persistence of discharge alone from any sinus that has undergone operative treatment is, as a rule, unsatisfactory to the patient and discomfiting to the surgeon. Taking each cavity by itself, the author enumerates some of the reasons for failing, in operative treatment, to secure complete relief from undue secretion.

Thirty Years of Stomach Surgery.—Phillips summarizes the lessons learned from thirty years' experience of stomach surgery. Disorders that are important in most stomach lesions are functional and not mechanical—disorders not of anatomy but of physiology. A stomach whose vagus and sympathetic nerve supply is normal will empty itself whether the patient is lying or sitting or standing; gravity plays a negligible part in the emptying of the organ. Acute dilatation of the stomach is a paralytic condition analogous to retention of urine and requiring treatment on similar lines. Acute paralytic dilatation may come on idiopathically but more usually as a postoperative complication. In many cases, treatment of ulcer by diet and alkalis is likely to fail because the patient either cannot or will not submit to a sufficiently prolonged and thorough course of treatment. Of a hospital series of stomach operations, 25 per cent were for ulcer perforations; most of these patients had had medical treatment. If a diseased appendix is present along with an ulcer there is little likelihood of the ulcer being cured by medical treatment alone. Many cases of chronic gastric ulcer fail to be diagnosed because the symptoms are apt to be both variable and ill defined; roentgen examination is desirable in most cases of chronic dyspepsia. Sudden loss of appetite in a patient whose digestion has previously been normal is highly suggestive of stomach neoplasm; roentgen examination should be advised without delay in such cases.

Journal of Pathology and Bacteriology, Edinburgh

34: 125-299 (March) 1931

Precipitation of Diphtheria Toxoid by Potash Alum. A. T. Glenny and M. Barr.—p. 131.
Malignant Neoplasm of Spleen and Bone Marrow with Metastases in Liver. C. G. Paine.—p. 139.
Intracutaneous Method of Testing Diphtheria Toxin and Antitoxin. A. T. Glenny and M. Llewellyn-Jones.—p. 143.
Latent and Occult Tuberculous Infection of Bronchial Glands. W. M. Cumming, S. J. Hartfall and J. G. Thompson.—p. 157.
Effect of Diet in Epidemic Infections in Mice. W. W. C. Topley, M. Greenwood and J. Wilson.—p. 163.
Changes in Blood Sugar and Blood Phosphorus in Rabbits Following Injection of Suspensions of Bact. Aertrycke. M. E. Delafield.—p. 177.
*Astrocytoma of Cerebrum Showing Extensve Involvement of Opposite Cerebral Hemisphere. E. A. Linell and K. G. McKenzie.—p. 195.
Intracutaneous Method of Testing Toxins and Antitoxins of "Gas Gangrene" Organisms. A. T. Glenny, M. Llewellyn-Jones and J. H. Mason.—p. 201.
*Analysis of Data Collected by Status Lymphaticus Investigation Committee. M. Young and H. M. Turnbull.—p. 213.
*Metastasis of "Benign" Giant Cell Tumor of Bone (Osteoclastoma). S. C. Dyke.—p. 259.
Malignant Osteoclastoma. J. W. Orr.—p. 265.
Rate of Disappearance of Diphtheria Toxoid Injected into Rabbits and Guinea-Pigs: Toxoid Precipitated with Alum. A. T. Glenny, G. A. H. Buttle and M. F. Stevens.—p. 267.

Astrocytoma of Cerebrum Showing Involvement of Opposite Hemisphere.—An astrocytoma that had shown

clinical evidence of its presence for over nine years before the death of the patient was submitted to detailed histologic examination by Linell and McKenzie. This revealed widespread infiltration by tumor tissue far beyond the macroscopic limits of the growth. The greater part of the tumor as delimitable by the naked eye was seen histologically to correspond to its degenerating portion. The spread of the growth from the left into the right cerebral hemisphere had shown little clinical evidence of its presence in the latter, even though pathologic changes were noted in nerve fibers entering this part of the tumor. There seems to be a possibility that the rate of growth of astrocytoma may be stimulated by this form of therapy. Roentgen treatment did not produce a definitely beneficial effect in this case.

Report on Status Lymphaticus.—The data on which this report by Young and Turnbull is based have been obtained as the result of a collective investigation organized by the Medical Research Council in conjunction with the Pathological Society of Great Britain and Ireland. Analysis of the data indicates that an abnormally large thymus in itself cannot be considered to be indicative of "status thymicolymphaticus" when no obvious cause of death is found post mortem. In the series of normal cases under investigation a thymus which may be considered abnormally large for the age was found in twenty subjects, ten of whom were under and ten over 16 years of age, but of this number in only four, in which the death was attributed to anesthesia or shock, can any special liability to death be assumed to have possibly existed or the cause of death be regarded as possibly inadequately explained. It is impossible to judge the adequacy of anesthetics or shock as causes of death because their effects cannot be measured in the dead body. The cases in which death was attributed to anesthetics or shock are, therefore, most important and have been given in detail. There were twenty-three such cases. Of the four in which the thymus can be considered to be abnormally large for the age, in one a major operation had been performed; in one purulent bronchitis, dilatation of the right ventricle and hypertrophy of the left ventricle were noted at necropsy; in the other two the conditions were apparently similar to those in other cases in which the thymus was not unusually large. "Encirclement of the trachea" by the thymus appears to be comparatively rare in occurrence and is not necessarily associated with a thymus exceeding the average weight. In the normal series of cases at ages 0 to 16 years there appears to be little if any association between the weight of the thymus and the amount of lymphoid tissue in the various parts of the body, so far as this amount can be indicated by the volumetric measurements of the faucial and lingual tonsils, the selected lymph nodes from certain sites, Peyer's patches, and so on. There is no definite evidence in the relatively few data available of any concomitant general hyperplasia of lymphoid structures in cases in which there was an abnormally large thymus. The amounts of lymphoid tissue in the several parts of the body, so far as they can be considered to be represented by the selected criteria, seem to show practically no association with one another to which any significance can be attached. In the series of subjects with exophthalmic goiter, there is evidence that the average gross weight of the thymus is distinctly above the normal, thus providing confirmation of what is a more or less general opinion based on naked-eye observations that the thymus appears almost invariably to be abnormally large in this condition. Though the relatively few data available do not warrant any definite conclusions, they suggest strongly that the percentage proportion of glandular tissue in the thymus is above the normal but that there is no definite general hyperplasia of lymphoid structures in this condition. There is no evidence in the series examined of an association between arterial hypoplasia and an abnormally large thymus. The relatively few data for evidence of feminism in males, as indicated by a female type of distribution of the pubic hair, do not suggest that the weight of the thymus is abnormal when this feature is present.

Metastasis of "Benign" Giant Cell Tumor of Bone.—A case of "benign" giant cell tumor of bone is recorded by Dyke in which metastases of the same structure as the primary tumor were demonstrated in the scalp, lungs, kidneys and mediastinal and peritoneal lymph nodes; there was evidence of further metastasis in the ribs and spine but this was not proved histologically. The history of the case extended over five years. It is concluded that unless completely eradicated this tumor is liable in course of time to assume malignancy of a high order.

Medical Journal of Australia, Sydney

1: 247-274 (Feb. 28) 1931

Vernes' Test as Applied in Diagnosis and Treatment of Syphilis and Tuberculosis. H. A. Woodruff.—p. 247.
*Preparation of Human Immune Serum for Treatment of Poliomyelitis. A. B. Lilley.—p. 251.
Renal Tuberculosis. F. W. D. Collier.—p. 254.
Few Surgical Principles. R. Worrall.—p. 256.
Anesthesia for Operations on Base of Brain. G. Brown.—p. 258.
Resuscitation by Cardiac Stimulation. D. Stewart.—p. 259.
Carotinemia (Biochemical Notes). J. V. Duhig.—p. 260.

Human Immune Serum for Treatment of Poliomyelitis.—A method of production of convalescent poliomyelitis serum is described by Lilley. The results are compared with those obtained by the original method. The larger amount of serum obtained by the author's method from approximately the same number of donors has been due to the larger amount of blood drawn from each individual. This has been made possible by the use of the apparatus and technic described. In the author's venesections, 60 per cent of the donors were from 8 to 20 years of age. The average amount of blood drawn, 416 cc., might seem to be a large one, but in no instance were any immediate or remote after-effects noted and all children were followed up carefully. In a few instances they have returned later to give more blood. The percentage yield of serum is almost the same in the two methods (38.2 per cent and 37.7 per cent). Yet the use of the apparatus has made unnecessary the use of anticoagulants, weights and so on, thus reducing considerably the risks of contamination and producing an entirely natural serum free from all chemical interference.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

47: 237-278 (Feb. 23) 1931

Aneurysm of Aortic Arch or Mediastinal Tumor in Boy Aged Fourteen. B. Weill-Hallé and Haik.—p. 240.
Roentgen Diagnosis of Chronic Appendicitis. G. Laroche, Brodin and Ronneaux.—p. 244.
Diabetes Insipidus Cured by Antisyphilitic Treatment. M. Labbé.—p. 246.
*Two Cases of Poliomyelitis: Treatment by Blood of Convalescents. M. Petzetakis.—p. 247.
Amebic Dysentery in Greece: Rupture of Amebic Abscess of Liver into Bronchi. M. Petzetakis.—p. 256.
Multiple Enchondromas Associated with Osteogenic Exostoses in Child with Hypertrophy of Thymus. E. Ledoux and P. Cottet.—p. 261.
Myastheniform Diphtherial Polyneuritis. G. R. Doré.—p. 265.
Two Cases of Fatal Subacute Septicemia from Hemolytic Streptococci. G. Caussade, A. Medioni and P. Coupeau.—p. 268.

Poliomyelitis: Treatment by Blood of Convalescents.—Petzetakis reports two cases, which he observed during the epidemic of poliomyelitis in Greece in 1930, in which citrated blood of convalescent poliomyelitis patients was used in the treatment. In the first case the earliest symptoms were gastrointestinal troubles; the motor disturbances appeared on the fifth day, with retention of urine and paresis of the muscles of the nape of the neck. A lumbar puncture revealed an augmentation of tension of the cerebrospinal fluid and a marked lymphocytosis. Intramuscular injections of the citrated blood of convalescents greatly ameliorated the motor symptoms, which had disappeared by the fourteenth day, leaving the patient cured. The fever persisted, however, and on the twenty-eighth day apyrexia was not yet quite complete. The second case was much more severe. The onset was violent, with high temperature and paralysis developing within a few hours in the muscles of the abdomen, bladder, nape of the neck and so on. Respiratory and cardiac disturbances were observed. There was a marked increase in the tension of the cerebrospinal fluid. One hundred and fifty-five cubic centimeters of citrated blood of convalescents was injected in six doses during a period of eight days. The motor troubles were ameliorated, leaving only a paraplegia of the lower limbs. The persistence of the fever and of a poor general condition, however, led to the injection of 100 cc. of antipoliomyelitic serum (which had not been procurable at the beginning of the treatment). This effected a complete cure. The author feels that the blood of convalescents is of distinct therapeutic value when administered in the early

stages of the disease before the motor disturbances and general symptoms have become too intense. In more severe cases, as in the second one reported, it is useful as a preliminary treatment, to be supplemented by antipoliomyelitic serum.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

57: 247-300 (Feb. 28) 1931. Partial Index

*Acute Articular Rheumatism with Peritoneal Reaction Simulating Appendicitis. Baudet.—p. 265.

Rupture of Patellar Ligament: Suture: Fracture of Patella Four Months Later with Process of Osteoporosis. Ferron.—p. 267.

Acute Articular Rheumatism Simulating Appendicitis.—Baudet reports a case of acute articular rheumatism in which the first symptoms so resembled those of appendicitis that operation was performed. Spontaneous abdominal pains, occurring regularly after meals, were localized in the right iliac fossa with the maximum of intensity near the appendix. McBurney's point was definitely painful. Appendectomy revealed a normal appendix. The patient's condition was not modified by the operation. The next day the localization of the pain shifted to the limbs; a diagnosis of acute articular rheumatism was made, treatment by sodium salicylate was applied, and the patient was cured. The author points out that the early symptoms seemed so clearly indicative of appendicitis that it was practically impossible to detect the true nature of the condition.

Médecine, Paris

12: 85-168 (Feb.) 1931

Neurology in France in 1930. Laignel-Lavastine.—p. 85.

Disturbances of Pileous System and Vitiligo in Patients with Exophthalmic Goiter. P. Sainton.—p. 105.

Postvaccinal Encephalitis. L. Babonneix.—p. 110.

Rotatory Nystagmus and Syringobulbia. A. Thomas.—p. 114.

Localization of Cerebral Tumors from Neurosurgical Standpoint. T. de Martel.—p. 121.

*Sensory Troubles in Multiple Sclerosis. T. Alajouanine.—p. 129.

Neurotissulovascular Reactions in Periviscerítis. L. Alquier.—p. 137.

Psychopathology of Suicide. A. Delmas.—p. 154.

Conduct of Psychiatry Toward Families of Patients. P. Courbon.—p. 161.

Sensory Troubles in Multiple Sclerosis.—Alajouanine points out that, although the diagnosis of multiple sclerosis is easy in the face of a spasmodic paraplegia with tremor and nystagmus, it is often difficult when the disease appears in a latent or atypical form. The sensory troubles that frequently accompany this condition often have, therefore, considerable semeiologic value. These symptoms may be divided into two groups: 1. Subjective sensory troubles, especially paresthesia, less frequently pain, are often observed, grouped in a characteristic complex, in the first stages of multiple sclerosis. 2. The objective sensory troubles are less constant and, except for astereognosis, have no special significance in the early stages; however, their evolution is rapid and they later become of marked diagnostic and prognostic value.

Paris Médical

1: 193-208 (Feb. 28) 1931

Mongolian Idiocy. P. Lereboullet.—p. 193.

Problem of Tonsils. L. Dufourmentel.—p. 198.

*Etiology and Treatment of Postoperative Phlebitis. A. Schwartz, J. Fisch and Schil.—p. 201.

Pericarditis with Effusion. M. Chavigny.—p. 204.

Etiology and Treatment of Postoperative Phlebitis.—Schwartz and his associates believe that postoperative phlebitis is of bacterial origin, caused by an organism, almost always from the intestine, which enters the circulation and reaches a vein that has previously suffered a lesion of some kind. The authors emphasize the fact that this earlier venous lesion is an essential etiologic factor. The three kinds of bacilli that are considered the most important in the production of postoperative phlebitis because of the ease with which they pass through the intestinal wall are the colon bacillus, the enterococcus and the staphylococcus. In order to test their theory of bacterial origin the authors used a vaccine prepared from these three bacteria. They vaccinated thirty-eight patients before operation for fibromas. In only one of the cases did phlebitis develop after the operation. On the other hand they performed one operation for fibroma without preliminary vaccination, and an embolism developed.

Presse Médicale, Paris

39: 298-312 (Feb. 28) 1931

*Treatment of Alcoholic Delirium by Strychnine. P. Pagniez and P. Chaton.—p. 297.

Transitory Auricular Fibrillation and Deformation of Ventriculograms in Course of Attack of Acute Articular Rheumatism. E. Géraudel and D. M. Gomez.—p. 298.

Treatment of Alcoholic Delirium by Strychnine.—Pagniez and Chaton recommend the use of strychnine in the treatment of patients with alcoholic delirium. They have used this method with excellent results in forty-two severe cases. Injections of 2 mg. of strychnine sulphate are given every three hours, or in some cases every two hours, until a daily dose of from 10 to 16 mg. has been administered. No other medicament is used. The patient is required to drink large quantities of water and tea. When his agitation is not excessive he is left at liberty in his room, which usually contains no furniture except a pallet on the floor. If he becomes too violent a strait-jacket may be used, or he may even have to be tied in his bed. A patient who arrives at the hospital in a state of mental confusion, with hallucinations, trembling, covered with perspiration and suffering from insomnia may usually be quieted in from twenty-four to forty-eight hours. From then on the daily doses are gradually decreased. The authors have never observed the slightest disagreeable reaction from the strychnine treatment. It is difficult to determine the exact nature of its action or whether it is a specific for alcoholism or for the nervous reactions of alcoholism. It is significant, however, that in cases of delirium from nonalcoholic causes the injections of strychnine have absolutely no effect.

Revue Neurologique, Paris

1: 1-124 (Jan.) 1931

Value of Biopsy Methods for Diagnosis of Tumors of Central Nervous System. E. Forster.—p. 1.

Importance of Vestibular Disturbances in Tumor of Fourth Ventricle: Case. J. A. Barré and O. Metzger.—p. 16.

Chronic Hypertrophic Sclerogummatous Neuritis of Ulnar Nerve in a Tabetic Person. G. Guillain and J. Périsson.—p. 27.

*Two Cases of Hemangioblastoma of Cerebellum: Value of Position of Head in Diagnosis of Tumors of Posterior Fossa. C. Vincent and F. Rappoport.—p. 32.

Hemangioblastoma of Cerebellum: Value of Position of Head in Diagnosis of Tumors of Posterior Fossa.—Vincent and Rappoport report two cases of cerebellar hemangioblastoma. In the first case the most striking symptom observed was the position of the head, which was fixed in retroflexion by a painful torticollis. Because of this and other clinical indications, the diagnosis was tumor of the posterior fossa situated on the median line. The authors take occasion, however, to point out that a fixed position of the head, whether in anteflexion or retroflexion, is of pathognomonic significance only when it is the first symptom or when it accompanies other decisive bulbar or cerebellar symptoms, as was true in the case reported. They cite several personal observations that demonstrate this fact. The second case reported in this article is illustrative of the tendency in certain families to the formation in various localizations of cystic angiomas or angiomatous cysts. The patient had an angioma of the cerebellum and his son an angioma of the retina. His father became blind and died of a cerebral disease that caused violent headaches. A brother and a sister died of a meningeal disease.

Schweizerische medizinische Wochenschrift, Basel

61: 193-216 (Feb. 28) 1931

*Diagnosis and Treatment of Lymphosarcomas of Upper Respiratory and Alimentary Passages. E. Lüscher and H. Scartazzini.—p. 193.

Results Obtained by Simultaneous Serologic Examination with Methods of Hecht-Bauer, Wassermann and Vernes on Nine Thousand Patients. Wyss-Chodat.—p. 201.

Salt Content of Milk, Colostrum and Bile: Chemistry of Glandular Secretion. F. Steffen.—p. 204.

Dermatologic Experiences with New Antiphlogistic Ointment Therapy. W. Lutz and W. Kelterborn.—p. 205.

Treatment of Inflammatory Processes by Combating Pain. A. Gigon.—p. 206.

Hematuria Following Instillation of Boroglycerin into Bladder. W. Neuenschwander.—p. 209.

Lymphosarcomas of Upper Respiratory and Alimentary Passages.—Lüscher and Scartazzini stress that lymphosar-

comas of the upper respiratory and alimentary passages should not be treated as a special group of malignant tumors. They report their observations on thirteen cases. Eleven of the patients had been discharged from treatment more than six months previously, some as long as five years. Of the eleven patients seven are entirely free from symptoms and have remained free from relapse. The other four patients died following a temporary improvement during the first five months. In the majority of cases only radium treatment was employed, namely, distance irradiation from the outside, which in some cases was combined with contact irradiation and in others with radium puncture. In three cases the radium treatment was combined with roentgen therapy. The authors think that irradiation is the best method of treatment for lymphosarcomas. The statement that irradiation brings only temporary results is not justified if the correct technic is employed.

Annali Italiani di Chirurgia, Naples

10: 1-128 (Jan. 31) 1931

Gastroduodenal Ulcer. G. Pascale.—p. 1.
Clinical and Operative Refinements for Diagnosis and Treatment of Renal Tumors. R. Alessandri.—p. 41.
Alkali Reserve in Stenosis and Experimental Occlusions of Common Bile Duct. S. Latteri.—p. 66.
*Traumatic Exostoses. V. Sergi.—p. 83.

Traumatic Exostoses.—Sergi reports a case of conspicuous exostosis of the lower face of the large calcaneal apophysis, which developed from a reaction of the periosteum in the presence of a sharp piece of aluminum, which entered the foot as the result of an accidental injury and remained in intimate contact with the calcaneum.

Chirurgia degli Organi di Movimento, Bologna

15: 397-496 (Jan.) 1931

Luxation and Fracture of Tarsal Scaphoid and Their Treatment. R. Babini.—p. 397.
Solitary Osteogenic Exostoses. M. Canavero.—p. 411.
Isolated Fracture of Trapezoid. E. Benassi.—p. 431.
Tumor of Calcaneal Region, Treated by Application of Wladimiroff-Mikulicz Operation. D. Mucci.—p. 437.
Arthroplastic Operations on Hip. G. Zaremba.—p. 454.
Hemophilia in Relation to Volkmann's Ischemic Retraction. E. Pasquali.—p. 467.
Note on Achondroplasia (Ollier's Disease). E. Dotti.—p. 476.
*Two Cases of Fracture of Axis Without Nerve Symptoms. G. Lucchese.—p. 481.

Fracture of Axis Without Nerve Symptoms.—Lucchese describes two cases of fracture of the axis without symptoms involving the nervous system, in which a cure was effected by immobilization. The first case was a fracture of the vertebral pedicles with marked forward dislocation of the body of the axis, while the arch maintained its normal connections. The second case was a fracture of the odontoid process of the axis at its base. The odontoid process, together with the atlas, which was luxated, had undergone a posterior dislocation. The author emphasizes the view that fractures of the first cervical vertebrae must not be regarded as a rare lesion, and that their prognosis is not usually as unfavorable as has been supposed—especially if appropriate treatment is instituted in time.

Clinica Chirurgica, Milan

34: 1-112 (Jan.) 1931

Accessory Pancreas. C. R. Fumagalli.—p. 1.
*Lesions of Superior Longitudinal Sinus in Cranial Fractures with Especial Reference to Their Treatment. G. Bianchi.—p. 28.
*Histologic Observations on Irradiated Hyperplastic Goiters. L. Durante and G. Prussia.—p. 57.
Last Point in Operation for Crural Hernia. B. Piccini.—p. 63.

Lesions of Superior Longitudinal Sinus in Cranial Fractures.—Bianchi, in order to obtain an easy, certain and definitive hemostasis in lesions of the superior longitudinal sinus in cranial fractures, makes use of the following technic, which he discusses from the clinical and the experimental points of view: He secures before the operation an ample supply of softened catgut, which, at the moment of hemorrhage, he applies as a tampon. He prepares then a flap of the scalp, which he turns back over the tampon of catgut and sutures over the craniotomy breech.

Histologic Observations on Irradiated Hyperplastic Goiters.—Durante and Prussia report the histologic observations on an adenomatous goiter of the thyrotoxic type, which was irradiated with roentgen rays for a long time and then surgically removed by left hemithyroidectomy. The observations revealed a notable increase of interstitial connective tissue in the external cortical areas; while the central and the deep areas revealed the structure of the fetal adenoma without any reaction of the connective tissue. The authors consider that the action of the rays is confined to a diffuse sclerosing effect on the surface but greatly limited in depth, which explains the persistence of the active hyperplastic parenchyma in the central and deep areas. These observations prove that the opinion of the majority of authors who consider that the hyperthyroid patient who is cured by roentgen therapy is one who is in a latent state has an anatomopathologic basis.

Policlinico, Rome

38: 219-254 (Feb. 16) 1931. Practical Section

*Insulinemia in Obesity and in Emaciation. D. Columba.—p. 219.
Pulmonary Echinococcus Cysts in a Child, Aged Thirteen, Treated by Baccelli Method and by Pneumothorax: Recovery. A. Fiorentini.—p. 222.

Insulinemia in Obesity and in Emaciation.—Columba studied insulinemia on twelve obese and ten underweight persons. From 30 cc. of venous blood taken from the hollow of the elbow, he extracted, by the acetone-trinitrophenol method, a substance having the action of insulin, which, when injected into a rabbit that has fasted for eighteen hours, induces at first a hyperglycemic reaction and later a hypoglycemic reaction. The hypoglycemic potency of the extract obtained from the blood of the obese was in every case less than that of the extract derived from the persons who were underweight. He concludes that there is in the obese a state of hypo-insulinemia, which is to be regarded as the expression of a latent state of functional insufficiency of the pancreas.

38: 57-108 (Feb. 15) 1931. Surgical Section

Classifications and Theory of Hemangiomas and Capillary Malformations. A. Costa.—p. 57.
*Bacteriophage Therapy in Localized Pyogenic Infections. G. Pacetto.—p. 76.
Primary Malignant Epithelial Tumor of Testis in Childhood. M. Sirolli.—p. 96.

Bacteriophage Therapy in Localized Pyogenic Infections.—Pacetto applied bacteriophage therapy in thirty-six cases of furuncles, carbuncle, hidrosadenitis, abscess, phlegmon and mastitis. In 88.2 per cent of the cases a cure was effected in from two to ten days, with from one to three injections of bacteriophage. In 11.8 per cent of the cases the suppurative process resisted the bacteriophage and surgical intervention became necessary. In no case did exacerbation result from the bacteriophage therapy.

Riforma Medica, Naples

47: 161-200 (Feb. 2) 1931

*Appendicitis Simulating a Neoplasm of Cecum: Case. G. Marcucci.—p. 167.
Neoplasm of Lung and Artificial Pneumothorax. G. Dalla Torre.—p. 173.

Appendicitis Simulating a Neoplasm of Cecum.—In Marcucci's patient, a man aged 38, it was found by means of a right pararectal laparotomy, under morphine-ether anesthesia, that the cecum presented slightly inspissated walls, especially in its posterior surface, and was entirely adherent to the iliac fossa, while the appendix was edematous and red, not easily circumscribed, twisted posteriorly and located behind the cecum for its whole length of 6 or 7 cm., surrounded by a large quantity of old and recent exudates. Appendectomy was performed. The appendix was found to be hard, with thickened walls, and full of detritus and pus. The postoperative course was regular; recovery by first intention. The appendix examined microscopically showed the existence of an intense chronic inflammation with abundant new connective tissue in the submucosa. The case therefore belongs to the large group of abdominal inflammatory pseudotumors to which special attention was called by Lejars in 1908, which have been studied by Terrier, Hartmann, Cassanello, Fasano, Baggio and others. Such pseudotumors may

develop in any region of the abdomen as the result of any chronic irritation, whether of a mechanical, chemical or bacterial nature, and are often accompanied by inflammations of the cecum and of the appendix. They may induce also a syndrome of chronic occlusion more or less complete. They may create often clinically and sometimes also anatomopathologically the picture of true ileocecal blastomas. A chronic disorder of the appendix may finally reveal the condition.

47: 201-240 (Feb. 9) 1931

Arteriovenous Anastomosis in Raynaud's Disease. M. Trincas.—p. 203.
Vegetative Nervous System in Pulmonary Tuberculosis, in Pneumothorax Treatment and in Pleural Eclampsia. M. Gelera.—p. 209.

Tumori, Milan

5: 1-101 (Jan.-Feb.) 1931

*Effects of Subcutaneous Injections of Tar for Experimental Production of Sarcoma. G. C. Peracchia.—p. 1.
Chemical Researches on Presence of Phosphorus in Neoplastic Tissues. C. Cavina.—p. 27.
*Primary Carcinoma of Lung and Bronchi: Five Cases. E. Pekelis.—p. 33.
Melanoblastoma of Foot: Case. P. Pariset.—p. 82.

Experimental Production of Tar Sarcoma.—Peracchia seeks to control the affirmations made by Russell on the experimental production of tar sarcoma. He performed weekly subcutaneous injections of mineral tar in 170 animals (mice and rats) for periods varying from twelve to fourteen months. The technic of his experiments, as well as the macroscopic and microscopic studies, were made according to Russell's experiments, except for some modifications. The grave toxicosis observed in animals with experimental epithelioma (which by causing a diminution of the antiblastic powers constitutes a disposition of the animals to the development of cancer) is also observed in animals that receive subcutaneous injections of tar. When the animals are treated for ten and twelve months, they show an almost complete disappearance of the oncolytic power of the blood serum. In the author's experiments, growths suspected of being sarcoma, which developed some time after the administration of tar in subcutaneous injections, were removed and used as transplants (in both normal animals and in animals that had received tar treatment) and also as autotransplants. In some animals with growths suspected of being tar sarcoma, the injections were discontinued after ten or thirteen months to observe the evolution of the growths after the discontinuance of the tar injections. The author concludes that subcutaneous injections of tar do not cause experimental tar sarcoma. The growths produced do not give constant positive results when they are controlled either by biologic tests or by the repeated transmission of the tumors in successive generations of animals. The rareness in the formation of tar sarcoma contrasts with the relative frequency with which experimental skin cancer is produced, as well as with the asserted easy transformation of mesodermal cells into blastoma, when they are cultivated in vitro. This contrast seems to point out that the connective tissue has greater susceptibility to oncogenic influences (such as the local stimulation of the cancerogenic substances and the disappearance of the antiblastic forces caused by the general toxicosis) than the skin. However, in vivo there remain sufficient forces of defense to prevent the cases in which the mesenchyma may undergo neoplastic changes.

Primary Carcinoma of Lung.—Pekelis presents a statistical résumé on the incidence of primary cancer of the lung and on its frequency in relation to age and sex. The etiology and pathogenesis of the disease, as well as the importance that several conditions (congenital malformations, pneumonoconiosis and the diseases of the respiratory tract) may have as predisposing factors are discussed. A detailed study of the morphology and histogenesis of the tumor with descriptions of its initial seat, the macroscopic aspect of the lesion and the nature and genesis of primary cancer of the lung, is given. Five observations of primary cancer of the bronchi in patients aged from 37 to 38 years are reported. The tumors when studied microscopically proved to be of a bronchial adenocarcinomatous type in three cases, of a papillomatous type in one case, and the tumor was characterized by a diffuse infiltration in one case. In the author's cases, metastases were observed in the lymph nodes, in the bones and in the brain. Problems related with the so-called primary alveolar cancer are discussed with especial reference to the nomenclature of the condition as well as to the nature of the epithelial lining of the alveoli of the lung.

Deutsche medizinische Wochenschrift, Berlin

57: 305-348 (Feb. 20) 1931. Partial Index

*Relations of Bile to Entire Metabolism. R. Seyderhelm.—p. 305.
Reorganization of Accumulation of Pharmaceutic Preparations. F. Eichholtz.—p. 308.
Experiences with Adherent Lenses in Correction of Errors of Refraction. C. H. Sattler.—p. 312.
*Treatment of Adhesion Ileus in Course of Serious Intraperitoneal Inflammations. K. Reschke.—p. 314.
From "Early Infiltrate" to Phthisis. M. Dugge.—p. 317.
Fourth Disease. Drenkhahn.—p. 319.
*Prevention of Formation of Keloid by Prophylactic Irradiation of Fresh Operative Wound. M. Bab.—p. 319.
New Type of Bandage for Preternatural Anus. W. Karo.—p. 320.

Relations of Bile to Entire Metabolism.—Seyderhelm reviews the chemical relations between bile and the metabolic functions. He comes to the conclusion that the bile consists of a peculiar mixture of metabolic waste materials and of substances that are of vital importance for the building up of the organism. Whereas the waste materials are eliminated from the body, the bile acids and the ergosterol are reabsorbed by the intestinal wall. Their hepato-enteral circulation influences the hematopoiesis and the calcium metabolism. It cannot be definitely stated as yet whether besides bile acids and ergosterol there are other sterols in this circulation. That there are also relations between the bile and other organs was proved by an experiment on a dog with a biliary fistula, in which removal of the ovaries was followed by a disturbance in the formation of hemoglobin. It appears that the interruption of the hepato-enteral circulation of the biologic sterols results in disturbances in other organs. The bile illustrates by its complex composition and by the diverse fate of the various constituents the variegated, almost inextricable, multiformity of physiologic processes.

Treatment of Adhesion Ileus.—The study of Schöne's article in the *Deutsche medizinische Wochenschrift* (**55:**520 [March 29] 1929; abstr. THE JOURNAL, June 15, 1929, p. 2066), gave Reschke the impression that to employ this method in all cases would be dangerous, and that, on the other hand, the direct separation of inflammatory adhesions is not as dangerous as Schöne assumes. He describes symptoms by which a postoperative ileus can be recognized and stresses that early surgical intervention is necessary. In ten cases of postoperative adhesion ileus he removed the obstruction by separating the adhesions, and in one of the cases an incarcerated intestinal loop had to be freed. The clinical histories of four cases of ileus after appendectomy are reported. One of the patients died because the operative intervention had been postponed too long, but in all cases the separation of the adhesions could be done easily, and the disappearing localized peritonitis was never exacerbated. The author concludes that Schöne overestimates the dangers of the separation of adhesions and that his method of anastomosis between a loop of the small intestine and the sigmoid is not the method of choice in adhesion ileus. He also stresses that a necessary surgical intervention should not be unduly postponed and that the aversion against a repeated laparotomy has to be overcome. An enteric fistula should be the ultimate resource in extremely weakened patients.

Prevention of Formation of Keloid.—Bab points out that with the increase in cosmetic operations the prevention of keloid formation becomes more important, because the success of such an operation is considerably reduced by formation of unsightly scars. He advises roentgen irradiation of the fresh surgical wound about twelve hours after the operation. He applies one-third unit skin dose and after three days he repeats the irradiation with the same dose. Two cases are reported in which this method proved helpful. The author is as yet not able to explain how the roentgen irradiation prevents keloid formation, but he thinks that the mechanism might perhaps be similar to that in the irradiation of malignant growths; namely, that the rays influence the tissues containing histamine. In spite of the fact that the limited number of cases does not justify a conclusive statement in regard to the reliability of the method, its simplicity and its harmlessness are sufficient reason to employ it on other patients.

Klinische Wochenschrift, Berlin

10: 289-336 (Feb. 14) 1931

Comparative Pathology of Tumors in Man and Animal. K. Winkler.—p. 289.
*Circulatory Action of Ephedrine. F. Hildebrandt and H. Mügge.—p. 291.
Presence of Indican and of Aromatic Substances in Blood in Extreme Cardiac Decompensation and Morphine Poisoning. J. E. W. Brocher.—p. 294.
Experiences with Roentgen Therapy of Thyrotoxicoses. E. Häyer.—p. 297.
Gänsslen's Injectable Liver Extract: New Proof Against Liver Resistance in Anemia and for Control of Funicular Myelitis. V. Schilling.—p. 301.
Posterior Radiculitis: Probability of Infectious Origin. R. Hirschfeld.—p. 303.
Demonstration in Vitro of Specific Antibodies in Severe Allergy to Fish and Yeast. K. Jaffé.—p. 304.
Nonspecific Immunization by Means of Parenteral Administration of Sulphur. G. J. Pfalz.—p. 306.
Etiology and Pathogenesis of Pruritus and Prurigo in Lymphogranulomatosis. W. Brack.—p. 307.
Experimental Hyphomycetes Infections of Eye: Observations on Organotropism. W. Jadassohn and K. Rehsteiner.—p. 308.
Influence of Atropine on Glycemia in Human Beings. D. Danielopolu, S. Stoicescu and Cimino-Bérenger.—p. 311.
Clinical and Hematologic Aspects of Metastatic Bone Tumors. F. P. Weber and O. B. Bode.—p. 313.

Circulatory Action of Ephedrine.—Hildebrandt and Mügge direct attention to the fact that the action of ephedrine is often thought to be equivalent to that of epinephrine. However, they think that this is not at all the case. Experiments on animals convinced them that the cardiac action of ephedrine is not at all regular. Frequently a favorable influence can be noted; but after repeated applications the opposite effect is occasionally observed, and in some instances the injurious influence on the heart is noted during the first application. For this reason they advise that, if ephedrine is employed at all in conditions of collapse, the greatest precaution is necessary.

10: 337-384 (Feb. 21) 1931

Immunity in Syphilis. A. Buschke and A. Joseph.—p. 337.
*Recurrent Dyspnea of Patients with Heart Disease and Hypertension. K. Gollwitzer-Meier.—p. 341.
Occurrence of Heavy Metals in Human Gallstones. R. Schönheimer and W. Herkel.—p. 345.
*Influence of Spleen Extracts on Reticulo-Endothelial System Demonstrated on Trypan Blue Storage. E. Schliephake and G. Sincke.—p. 348.
Influence of Blood of Pregnant Women on Metamorphosis of Tadpoles. H. Eufinger, H. Wiesbader and N. Smilovits.—p. 348.
*Clinical Significance of Pancreatic Principle Producing Hyperglycemia. M. Bürger.—p. 351.
Specific Therapy of Gonorrhea by Means of Soluble Gonotoxin. W. Wolffenstein and E. Pieper.—p. 354.
Experimental Investigations on Effect of Inhalation of Small Quantities of Benzine and Benzene on Respiratory Organs and on Entire Organism. I. T. Larionow and N. W. Lazarew.—p. 356.

Recurrent Dyspnea of Patients with Heart Disease and Hypertension.—Gollwitzer-Meier says that, in attempts to classify cases of recurrent dyspnea according to their pathogenesis and clinical manifestations, into cardiac asthma and cerebral asthma, difficulties have been encountered. He asserts that insight into the functional correlations makes it impossible to trace the pathogenesis of the asthmatic attacks to one particular organic function. A satisfactory solution of the problems can be expected only from the consideration of all correlations of respiratory and circulatory processes. The changing interrelations of peripheral and central, and of generalized and local, circulatory disturbances cause certain, even if not entirely regular, variations in the aspects of asthma, which, according to the former conception, were differentiated into cardiac and cerebral forms. In most cases it is not possible to make a sharp distinction between the two types, either in regard to the pathogenesis or in regard to the clinical manifestations. That there is no essential difference between the two forms is also proved by the fact that the same prophylactic and therapeutic measures (diets deficient in sodium chloride and in fluid content) are employed in the two. The fact that in the cardiac form, in which generalized circulatory disorders predominate, morphine or strophanthin is most effective, whereas in the cerebral form theophylline is more helpful, does not speak against the functional identity of the two forms.

Influence of Spleen Extracts on Reticulo-Endothelial System.—Proceeding from the thought that one of the functions of the spleen is to combat diseases, Schliephake and Sincke investigated the question of whether the administration of spleen substances effects an increase of this combative action. The storage capacity of the reticulo-endothelial system for trypan blue served as indicator. Ten rats and eight guinea-pigs were given either fresh spleen orally or injections with a spleen extract. In all these animals the storage of trypan blue in the reticulo-endothelial system showed a marked increase, when compared with the storage in control animals, which did not receive spleen.

Clinical Significance of Pancreatic Principle Producing Hyperglycemia.—Bürger is convinced that initial hyperglycemia is produced by all commercial insulin preparations but that crystallized preparations are free from this action. He found that the principle producing hyperglycemia is not an artificial product, which develops in the course of preparation of insulin, but that it is produced in the pancreas and that separate extraction is possible. The author further shows how in an insulin preparation the hyperglycemic principle can be separated from the essential action of the insulin; he designates this as the inactivation of the preparation. He then describes tests, which he performed with the inactivated insulin, on persons without disorders of the liver and on patients with hepatic disturbances. Healthy persons with an empty stomach react to intravenous injection of inactivated insulin with hyperglycemia, whereas in patients with severe disorders of the liver the hyperglycemia does not develop. However, it is understandable that the hyperglycemia is not absent in all patients with liver disturbances. For as long as healthy parenchyma is present, which is capable of storing glycogen, the test will be positive. An entirely negative reaction can be expected only in the last stages of cirrhosis of the liver, or in severe toxic injuries of the parenchyma, which exist in acute yellow atrophy of the liver or in severe cholemia. The author thinks that the functional test of the liver by means of "inactivated" insulin represents an improvement over the former test in which active insulin was employed.

Medizinische Klinik, Berlin

27: 231-268 (Feb. 13) 1931

Internal Secretion of Pancreas, Suprarenals and Ovaries. H. Poll.—p. 231.
*Dietary Therapy of Lupus and of Other Skin Diseases. G. Stümpke and B. H. U. Mohrmann.—p. 235.
*Genesis of Tension Pneumoperitoneum. V. Lieblein.—p. 239.
Staphylococcus Sepsis. B. Cohn.—p. 243.
Physical Therapy of Bronchial Asthma. E. Wellisch.—p. 244.
Influence of Arsphenamine on Liver and Individual Arsphenamine Tolerance. L. G. Barok and E. Székely.—p. 246.
Simple Procedure for Making Suprapubic Vesical Fistula. F. Rémy.—p. 248.
Cerebromedullary Ischemia as Cause of "Essential" Arterial Hypertension. W. Raab.—p. 248.

Dietary Therapy of Lupus and Other Skin Diseases.—By way of introduction, Stümpke and Mohrmann review the results which other workers obtained with the Gerson-Sauerbruch-Herrmannsdorfer salt-free diet. They themselves employed it in fifteen cases of lupus vulgaris. In ten of these cases they saw a favorable influence. In three instances there was no effect to be seen, in spite of the fact that the treatment had been continued for a considerable time. In two boys, aged 10 and 13 years, respectively, exacerbation was noted during the dietary treatment. The authors think that in the infantile organism the salt-free diet has a different mode of action than in the adult organism. The infantile organism has a greater avidity for sodium chloride, probably because it requires it for the growth process. In the conclusion it is stated that even in those cases in which the diet had a favorable influence the cure was not complete. The authors think that the dietary treatment is helpful in combination with other therapeutic methods but that it cannot be considered as the method of choice or as the inauguration of a new era in lupus therapy. In regard to other forms of dermatoses, it is stated that the salt-free diet was employed in all in about eight cases. However, among these there were many in which the dietary treatment was not employed alone but in combination with other therapeutic measures, and for this reason the results obtained cannot be entirely ascribed to the salt-free diet. With the exception of neurodermatitis and pemphigus, which are otherwise difficult to influence, there is no definite reason for extensive application of dietary therapy in skin diseases.

Genesis of Tension Pneumoperitoneum.—Lieblein shows that a tension pneumoperitoneum may develop if there is an external opening or a connection with an organ containing air, provided the opening is small and a valve mechanism develops. Besides these cases there are some in which a valve mechanism does not exist and to these the term spontaneous tension pneumoperitoneum is applied. These spontaneous cases may develop after a surgical intervention but also without one and are due to the fact that pathogenic, gas-forming bacteria pass through the nonperforated intestinal wall, and the resorption of the gas, which is formed in the abdominal cavity, is retarded. Certain injuries of the intestinal wall, such as maximal dilatation proximal to stenosed segments, also enteritis, ulcers, scars or traumatic injuries during surgical interventions, are predisposing factors. Changes that are characteristic of an extensive peritonitis have thus far not been observed in spontaneous tension pneumoperitoneum. Only in one instance were there signs of a slight inflammation. Accordingly, inflammation seems to be of minor importance in the genesis of spontaneous tension pneumoperitoneum, and the use of the term gas peritonitis should be discontinued, especially since the symptoms and the course of a spontaneous tension pneumoperitoneum differ decidedly from those of a peritonitis.

Münchener medizinische Wochenschrift, Munich

78: 261-302 (Feb. 13) 1931

*Occurrence of Tubercle Bacillemia in Various Diseases. E. Loewenstein.—p. 261.
Immunization Experiments Against Tuberculosis. K. Rupilius.—p. 263.
*Influence of Stomach Preparations on Pernicious Anemia. K. Gutzeit and J. Herrmann.—p. 266.
Balantidium Colitis: Its Resemblance to Sporadic Dysentery. Ridder.—p. 268.
Early Diagnosis of Sarcoma Formation Simulating Abscess of Prostate. H. Strauss.—p. 269.
Bandages in Habitual Luxation of Shoulder. G. Hohmann.—p. 270.
Concentrated Vaccines in Prophylaxis, Abortive Treatment and Therapy of Whooping Cough. F. Gierthmühlen.—p. 271.
Prophylaxis of Rickets by Means of Irradiated Milk. B. Essig.—p. 273.
Irradiated Fresh Milk and Viosterol in Treatment of Rickets. H. Rau and A. Gruber.—p. 274.
Treatment of Severe Cholera Morbus in Adults. L. Veilchenblau.—p. 275.

Occurrence of Tubercle Bacillemia in Various Diseases.—Loewenstein directs attention to his culture method which makes it possible to detect tubercle bacilli in the blood stream. He described the technic of this method in the *Münchener medizinische Wochenschrift* (**77:**1662 [Sept. 26] 1930; abstr. THE JOURNAL, Dec. 6, 1930, p. 1787). He then stresses the advantages which his method has over other diagnostic methods. In five patients in whom a slight increase in temperature existed but in whom neither physical nor roentgen examination revealed a pulmonary focus, tubercle bacillemia was discovered with the author's culture method, and the further course of these cases proved that the diagnosis of tuberculosis had been correct. In cases showing progressing anatomic changes, the proportion of positive reactions obtained with the culture method were about 80 per cent. Tests on blood specimens were made without knowledge of the diagnosis and it was found that in gonorrhea, syphilis, psoriasis and carcinoma the culture method always gave negative results. In metastatic forms of tuberculosis, especially in tuberculosis of the skin, the blood culture test was positive as long as the process was acute; and in tuberculosis of the genital tract the same condition was observed. The positive results in acute and subacute polyarthritis were so numerous that they cannot be considered accidental. The author discovered tubercle bacilli also in the blood of a patient with spinal meningitis and in several other patients with disturbances of the central nervous system. However, as yet, no general conclusions have been reached with regard to the occurrence of tubercle bacilli in diseases of the central nervous system. The author comes to the conclusion that the blood culture method is more reliable than either the examination of the sputum or the tuberculin test, and because of its diagnostic and prognostic value he recommends its general application.

Influence of Stomach Preparations on Pernicious Anemia.—Gutzeit and Herrmann describe the results which they obtained when patients with pernicious anemia were given either meat that had been treated with gastric juice or preparations of the mucous membrane of the region of the pylorus or of the fundus or a preparation of the wall of the small intestine. Their observations are summed up as follows: 1. In patients with pernicious anemia, who received daily 250 Gm. of meat that had been exposed for one hour to the influence of gastric juice, the symptoms of anemia disappeared. 2. The same results were obtained when patients with pernicious anemia were given meat that had been treated with a pepsin preparation. However, when the same pepsin preparation was given as a medicament in addition to ordinary diet, it had no effect. 3. Since the stomach preparation that proved effective in pernicious anemia does not contain rennin, this substance cannot be the antianemic factor. 4. Powder prepared from the mucous membrane of the fundus was effective in counteracting anemia; however, a preparation from the pyloric mucous membrane was effective in only one out of three cases. 5. A powder prepared from the small intestine of hogs proved ineffective.

Strahlentherapie, Berlin

39: 601-820 (Feb. 21) 1931

Defense Function of Skin with Regard to Light Rays. G. Miescher.—p. 601.
*Action of Light on Bacteria. O. Winterstein.—p. 619.
Sources of Artificial Light Used for Treatment. A. Laqueur.—p. 643.
Measurement of Ultraviolet Rays in Case of Mass Treatment. A. Lippmann and F. Dannmeyer.—p. 650.
Way of Using Mercury Vapor Quartz Lamp. V. Wucherpfennig.—p. 663.
Climatotherapy as Part of Public Health Care in Austria. W. Hausmann.—p. 675.
Atmospheric Dust Cloudiness in May and June, 1919. C. Jensen.—p. 685.
Influence of Cloudiness on Brightness of Earth Surface by Diffuse Atmospheric Light. N. N. Kalitin.—p. 717.
Sun and Sky Radiations in Baden Rhine Plain. A. Peppler.—p. 729.
Temperatures in Washington and Periodic Changes in Intensity of Sun Radiations. C. G. Abbot.—p. 735.
Permeability of Lower Air Spheres for Light. H. Buisson.—p. 747.
Methods of Measuring Radiations. C. Fabry.—p. 754.
Methods for Shortening and Increasing Efficacy of Heliotherapy. C. Brody.—p. 764.
Actinotherapy of Tuberculous Diseases. M. Ory.—p. 780.
Dosage of Sun Rays Used in Treatment of Internal Organs. P. Roussel.—p. 787.
Connection Between Intensity of Ultraviolet Rays and Altitude. A. Rosselet.—p. 794.
Combined Infra-Red and Ultraviolet Rays in Treatment of Rheumatism. I. Gunzburg.—p. 798.
Apparatus for Sunshine Autographs. C. Kassner.—p. 803.

Action of Light on Bacteria.—Winterstein's tests have confirmed the observation that ultraviolet rays are able to impair the growth of pathogenic and nonpathogenic bacteria or to destroy them. Young cultures proved to be more sensitive to the rays than old cultures. The resistance differed in bacterial individuums of the same culture and in various strains of homogenous bacteria; moreover the resistance appeared to be different in various bacterial species. The growth of fresh and of six hours old cultures was impaired by a dose of rays below or about that causing erythema in the abdominal skin. A dose of about or above that causing erythema was fatal for fresh cultures, while a dose causing severe burns was necessary for destruction of cultures six hours old. A dose of rays causing erythema of the abdominal skin proved fatal for streptococci; a much larger dose, namely, such as causes injury of the tissues, was necessary for destruction of *Staphylococcus aureus* and *Bacillus coli*. The resistance of tubercle bacilli proved to be twice as great as that of staphylococci. No connection was found between the resistance of bacteria to acids and that to light. It appeared that the visible and the ultraviolet rays have no amitokinetic action. Bacteriophages displayed a notable sensitiveness to the rays. Ferments appeared to resist the rays better than did bacteriophage. A clinical dose of ultraviolet rays was able to destroy a large number of bacteria, chiefly of nonpathogenic bacteria, suspended in the air or present on the ground and on the surface of objects. In the air experimentally infected with colon bacilli, streptococci and staphylococci, the microbes remained for hours when the weather was dry, while damp weather appeared to favor their settling on the ground. Bacteria proved to survive in dried and pulverized garden earth exposed to ultraviolet rays.

The rays were able to destroy a large number of bacteria present on the human skin; the necessary dose was well tolerated by the hands and forearms but caused burns on the abdominal skin. The clinical dose of rays was unable to destroy bacteria in wounds, nor could the rays destroy pneumococci and streptococci present in pus. Rays cannot be used for sterilization of suture threads, because their action is superficial; they do not destroy bacteria present within the threads. Evidently the visible, and especially the ultraviolet rays, appear to cause changes in the protein structure of the bacterial protoplasm resulting in impairment of growth and destruction of bacteria. Large doses of rays were able to destroy antibodies. Sensitization to light, namely to visible rays, appeared possible by means of fluorescigenous dyes. The author emphasizes that the therapeutic value of artificial ultraviolet rays ought not to be overestimated.

Wiener klinische Wochenschrift, Vienna

44: 245-276 (Feb. 20) 1931

Present Status of High Frequency Therapy. J. Kowarschik.—p. 245.
Experimental Investigations on Fatigue. F. Scheminzky.—p. 249.
Achylia Gastrica in Syringomyelia. L. Hess and J. Faltitschek.—p. 252.
Tuberculosis Immunity. E. Loewenstein.—p. 256.
*Therapy of Cirrhosis of Liver. G. Spengler.—p. 257.
Sepsis with Agranulocytotic Blood Picture. J. Zikowsky.—p. 259. C'cn.
Otitis Media. R. Leidler.—p. 263.
Rickets and Tetany. A. Bratusch-Marrain.—p. 266.
Significance of Hemorrhages During Pregnancy. J. Richter.—p. 266.
Early Tuberculous Infiltrate in Roentgenogram. F. Fleischner.—p. 267.

Therapy of Cirrhosis of Liver.—Spengler points out that the diuresis therapy has made considerable progress, especially since the injection of mercury preparations has been recommended. However, the combination of injection of a mercury preparation with the oral administration of ammonium chloride, which was first recommended by American authors, proved still more advantageous. This combination therapy was found helpful in the various forms of dropsy and particularly in ascites in cirrhosis of the liver. The author reports the clinical histories of three patients with cirrhosis of the liver, in whom the injection of a mercury preparation combined with the oral administration of ammonium chloride effected not only a considerable increase in the diuresis but also a decrease in the ascites formation. The combination mercury and ammonium chloride therapy was employed by giving the patients three days in succession, five times daily, two ammonium chloride tablets and on the third day an intramuscular injection of 1 cc. of the mercury preparation. At intervals of from one to three days, the same procedure was repeated.

44: 277-308 (Feb. 27) 1931

Microbiologic Experiments as Foundations of Researches on Vitamins. W. Kollath.—p. 277. C'td.
Examination of Metabolism During Circulatory Disorders. H. Schwarz, H. Dibold and D. Rappaport.—p. 280.
Alfred Ploetz and Movement for Race Hygiene. H. Reichel.—p. 284.
Therapy of Oxyuriasis. H. Lubieniecki.—p. 287. C'td.
*Treatment of Erysipelas by Means of Polyvalent Streptococcal Serum. Flora Eiselsberg.—p. 290.
Biologic Actions of Ultrashort Waves. L. H. Stieböck.—p. 291.
Prognosis and Prophylaxis in Premature Births. A. Reuss.—p. 292.

Treatment of Erysipelas by Polyvalent Streptococcal Serum.—Flora Eiselsberg reports that, of 164 patients with erysipelas, 43 were treated with serum. The serotherapy was employed only in the serious cases; namely, in those in which the process was progressive, in which the temperature showed a sudden increase, or in which signs of intoxication became manifest. The dosage of the serum differs in the individual cases. In the first injection, from 20 to 40 cc. is given subcutaneously into the abdominal skin. In order to detect anaphylaxis, a preliminary injection of 1 cc. of the serum is given two hours before the therapeutic dose is administered. If necessary, additional doses may be given on the following days; but the total amount should not exceed from 80 to 100 cc. The irregular course of erysipelas makes it difficult to estimate the effect of the serotherapy, but in most cases the subjective symptoms disappeared with surprising rapidity. In twenty-two out of the forty-three cases the fever decreased on the day of the injection but later increased again; in the other cases the fever was not influenced. In contradistinction to some workers who claim that serotherapy is useless after the fourth day, the author noted good results in cases in which the serum was injected after the fourth day.

Zentralblatt für Chirurgie, Leipzig

58: 321-384 (Feb. 7) 1931

*Exploratory Laparotomy for Rectal Diseases. R. Demel.—p. 322.
*Operative Method for Hallux Valgus. K. Eick.—p. 326.
Case of Echinococcus in Supraspinous Fossa of Scapula. S. Riswasch.—p. 331.
Case of Vertebral Osteochondritis. R. Schrader.—p. 335.
Case of Articular Lesions from Frost-Bite. A. von Tempsky.—p. 339.

Value of Exploratory Laparotomy in Cases of Rectal Diseases.—Demel describes three cases of rectal disturbances in which an exploratory laparotomy was used after examination with the proctoscope, roentgen rays and microscope failed to ascertain the diagnosis. One case was observed in a man, aged 65, with constipation, abdominal pains and loss of weight. On roentgenograms, the outline of the sigmoid flexure appeared indistinct; on proctoscopic examination the mucosa proved to be normal although a resistance was encountered at a distance of 20 cm. Cancer situated in the rectal wall was presumed; therefore an exploratory laparotomy was decided on. A right pararectal incision was made beneath the umbilicus under local anesthesia. A spastic contraction of the lower portion of the sigmoid flexure was found; there was not an organic stenosis or any other changes. The patient was then treated with papaverine; he was discharged thirteen days later in good condition. Another man, aged 60, was admitted for prolapse of the rectum complicated by bleedings. The proctoscope could be introduced only as far as 18 cm.; the mucosa proved to be intact. No pathologic changes were found on roentgen examination. The presence of a cancer was suspected. At an exploratory laparotomy neither a tumor nor an organic stenosis was found. There was only an intense spasm of the lower portion of the pelvic colon. The spasm had disappeared after treatment with a preparation of papaverine; the patient recovered. In the third case a woman, aged 53, had had diarrhea and bloody stools for a year. On proctoscopic examination a fold of the rectal mucosa adhered tightly to the underlying tissue. The diagnosis of cancer located in the rectal wall appeared probable. An exploratory excision and subsequent microscopic examination indicated that the rectal mucosa was intact; there was induration of the submucosa but no traces of cancer were present. The results were confirmed on a repeated exploratory excision. A year later, the patient was reexamined on account of a recurrence of diarrhea and bleedings from the rectum. On proctoscopic exploration a polypus that proved to be an adenocarcinoma was found. The roentgenograms were not conclusive in this case. The author stresses that the diagnosis could have been made a year earlier if an exploratory laparotomy had been performed. An exploratory laparotomy is indicated only after other methods of examination have been tried without avail.

Method for Surgical Treatment of Hallux Valgus.—Eick discusses the disadvantages of the operative methods used for treatment of hallux valgus. Their failure is due to the fact that the talipes valgus is not eliminated. Joint stiffening or reduction of movements results from excision of the capsular ligament, shortening and displacement of the abductor hallucis or chiseling of the "exostosis" with backward displacement of the capsular flap on the metatarsal shaft. Joint stiffening, arthritic changes and exaggeration of the talipes valgus occur after resection of the first metatarsal head. Relatively best results are obtained from Ludloff's operation consisting in an oblique osteotomy of the metatarsal shaft; failures observed with this method are partially connected with an increase of the talipes valgus. Eick recommends a method with which injury of the joint can be avoided; it restores the muscular equilibrium and renders reconstruction of the anterior vault possible. The details of the operation and postoperative care are given. A properly prepared inlay and suitable shoes suffice for treatment of a slight hallux valgus. Inflammation of corns situated on the deformation are treated with alcohol applications and rest in bed. With his method, the author says, the joint of the great toe is not opened and the talipes valgus is corrected;

the foot acquires a normal aspect. The long duration of the treatment is the disadvantage. Eick has used the method for the last two years; so far the results have appeared to be excellent.

Med. Mysl Uzbek. i Turkmenistana, Tashkent

5: 1-124 (Nov.-Dec.) 1930

Roentgenoscopy and Pyelography in Diagnosis of Urinary Calculi. D. Vvedenskiy, K. Nikishin and P. Tsarenko.—p. 19.
*Changes of Alkali Reserve After Operation. A. Zverev.—p. 26.
Reticulo-Endothelial Changes Following Splenectomy. T. Chayka.—p. 33.
Clinical Symptoms of Helminthiasis. V. Tarasov.—p. 39.
Influence of d'Arsonvalization on Gastric Secretion. S. Shipilin.—p. 43.
Nonrecognized Echinococcosis of Liver. G. Ilyin.—p. 54.

Connection Between Alkali Reserve of Blood and Postoperative Complications.—Zverev made 247 determinations of the alkali reserve of the blood of sixty patients exposed to various operations. A determination was made before intervention, then immediately afterward, and one and seven days later. In twenty cases in which the alkali reserve appeared undisturbed by operation, no complications were observed in the postoperative period. In forty cases there was a decrease of the alkali reserve after operation; this was associated with phenomena of acidotic intoxication and complications, as hematoma and suppuration of the wound, bronchitis and pneumonia. In eight patients the alkali reserve was determined before and after administration of a purgative prior to an operation; in six of them a decrease of the alkali reserve resulted, while no changes were found in two. In patients operated on under local anesthesia, the alkali reserve changed slightly or remained unchanged, and the postoperative course was normal. In thirty-seven out of forty-three patients operated on under general anesthesia (ether and chloroform) the decrease of the alkali reserve was notable; in eighteen the decrease appeared immediately after operation, in nineteen it developed gradually during the first day and returned to normal on the seventh day after the intervention. The author stresses the connection between decrease of the alkali reserve and simultaneous disturbance of the hepatic functioning. Two of ten patients with a postoperative pneumonia have died; the decrease of the alkali reserve was considerable at the end. In eight cases the decrease of the alkali reserve proved to be associated with an increase of the rest nitrogen in the blood; in the ninth case examined the alkali reserve and the rest nitrogen were unchanged. The psychophysical trauma appeared not to have influenced the alkali reserve of the blood. Zverev considers reduction of the alkali reserve as a warning sign of a local or a general pathologic process clinically not yet appreciable; it has thus a therapeutic and a prognostic value.

Nederlandsch Maandschrift voor Geneeskunde, Leyden

17: 435-494, 1931

*Fluorescein-Sodium as Aid in Diagnosis of Meningitis. J. C. Schippers.—p. 435.
Acute Anterior Poliomyelitis. J. Munk and H. A. C. Schaaf.—p. 448.
Banti's Disease. W. Naessens.—p. 467.
Genesis of Pulmonary Emphysema. G. A. Metz.—p. 473.

Fluorescein-Sodium as Aid in Diagnosis of Meningitis.—Schippers published in 1928 the favorable results of his trials of fluorescein-sodium as an aid in the diagnosis of meningitis, in that it reveals an increased permeability of the meninges and the choroid plexuses. In this article he gives his further observations. Also in this series of forty cases, the patient received in milk or chocolate 20 mg. of fluorescein-sodium per kilogram of body weight. Two and one-half hours later, lumbar puncture is done and the cerebrospinal fluid is examined in the usual manner. The fluorescein-sodium content of the fluid is determined by the colorimetric method. Whenever the concentration in the blood becomes high enough, the substance penetrates even healthy meninges and plexuses, so that for diagnostic purposes the dosage must be carefully regulated. All points of technic must be strictly observed; for instance, that the spinal fluid is absolutely clear; it must be examined also in the dark room with sharp rays of light from one side. In his new series he places a normal secretion at 0.03×10^{-5}. A few exceptions were noted; for instance, in one case of tuberculous meningitis in a child aged 5 years, the spinal fluid was scarcely fluorescent after three trials.

Norsk Magasin for Lægevidenskapen, Oslo

92: 125-220 (Feb.) 1931

Occurrence of Fat-Soluble Vitamins in Different Kinds of Fish. E. Poulsson.—p. 125.
*Case of Juvenile Dementia Paralytica Combined with Adiposogenital Dystrophy: Treatment with Malaria. I. Christensen.—p. 132.
*After-Examinations of Public School Children in Nidaros Given Pirquet Tests by Dr. Arnfinsen in 1914. H. Ouren.—p. 139.
Prophylaxis in Pregnancy and Delivery. H. Ouren.—p. 141.
Ununited Fracture of Scaphoid Bone of Wrist Treated According to Böhler. N. H. Brodersen.—p. 145.
Pirquet Examinations in Training-Ship Pupils. A. Forstrøm—p. 148.
*Roentgenogram of Lungs in Mitral Stenosis. H. Bjørn-Hansen.—p. 153.
Acute Dilatation of Stomach in Convalescence After Lobar Pneumonia. H. Bjørn-Hansen.—p. 156.
*Case of Hydrocyanic Acid Intoxication. J. F. Bratt.—p. 159.
*Two Cases of Angioma Arteriale Racemosum. E. Hjort.—p. 161.

Juvenile Dementia Paralytica: Treatment with Malaria.—Christensen's instance in a boy, aged 15, seems to show that adiposogenital dystrophy on a syphilitic basis may be improved by treatment of the cerebral syphilis, but it warns against the introduction of malaria treatment in juvenile paralysis.

After-Examinations of Public School Children Given Pirquet Tests.—Ouren states that of 5,456 children examined in 1914, 2,129 gave a positive tuberculin reaction, and 3,327 a negative one. Of the 1,032 from homes with other tuberculous patients 133, or 13.2 per cent, have since been reported as tuberculous, and of these 75, or 56 per cent, have died. Of the 4,424 children from families believed free from tuberculosis only 126, or 2.8 per cent, have since been reported as tuberculous, and these 67, or 53 per cent, have died. The presence since 1914 of tuberculous teachers in two of the schools is thought to have contributed to the infection of children from homes without tuberculosis.

Roentgenogram of Lungs in Mitral Stenosis.—Bjørn-Hansen warns that in the differential diagnosis between pulmonary tuberculosis and mitral stenosis the results of roentgen examination of the lungs may prove misleading, as the shadows of the enlarged blood vessels may resemble those seen in pulmonary tuberculosis, especially in miliary spread. In his case, even though mitral stenosis was suspected, the probable diagnosis of acute pulmonary tuberculosis with heart disease was made on the basis of the roentgenogram and the slight cardiac symptoms. Necropsy revealed mitral stenosis; there was no tuberculosis.

Case of Hydrocyanic Acid Intoxication.—This case of poisoning, accompanied by hyperglycemia and glycosuria, resulted from hydrocyanic acid gas which penetrated into the house from an adjacent building. Bratt gave 5 units of insulin, also about 800 cc. of physiologic solution of sodium chloride intravenously. The patient recovered. A favorable effect is ascribed to the insulin.

Two Cases of Angioma Arteriale Racemosum.—Hjort's patients, treated simultaneously, were aged 20 and 22, respectively. In the first case the angioma was behind the ear, in the other, in the calf of the leg, and in both cases it was so limited, in spite of over ten years' standing, that radical extirpation was possible.

Ugeskrift for Læger, Copenhagen

93: 125-146 (Feb. 5) 1931

*Diagnosis of Pulmonary Tuberculosis in Children. V. Poulsen.—p. 125.
Case of Infantile Scurvy: Treatment with Stassanized Milk. T. Bjering.—p. 129.
Morbus Despectus: Chronic Purulent Otitis. H. S. Madsen.—p. 130.
Case of Symptomatic Intercostal Neuralgia. T. Geill.—p. 131.

Diagnosis of Pulmonary Tuberculosis in Children.—Poulsen holds that examination of the water used in gastric lavage is of particular importance in children with a positive tuberculin reaction and with vague symptoms when it is difficult to determine whether the tuberculosis is in the lungs or in the lymph nodes of the chest. The five cases reported also show that children with a positive tuberculin reaction may be a source of infection even if pulmonary tuberculosis cannot be established by the usual clinical methods.